Minkowski Polynomials and Mutations: Appendices

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Appendix A: Minkowski Period Sequences

Table 0. IDs for Minkowski period sequences. The period sequences are sorted lexicographically.

Period sequence	ID
1, 0, 0, 0, 24, 0, 0, 0, 2520, 0, 0,...	1
1, 0, 0, 6, 24, 0, 90, 1260, 2520,...	2
1, 0, 0, 12, 0, 0, 540, 0, 0, 33600,...	3
1, 0, 0, 12, 24, 0, 540, 2520, 2520,...	4
1, 0, 0, 18, 24, 0, 1350, 3780, 2520,...	5
1, 0, 2, 0, 6, 60, 20, 840, 70, 7560,...	6
1, 0, 2, 0, 30, 0, 380, 0, 5950, 0,...	7
1, 0, 2, 0, 30, 60, 380, 840, 5950,...	8
1, 0, 2, 0, 54, 120, 740, 1680,...	9
1, 0, 2, 6, 6, 120, 110, 1260, 5110,...	10
1, 0, 2, 6, 30, 60, 470, 1680, 7630,...	11
1, 0, 2, 6, 30, 120, 470, 2520,...	12
1, 0, 2, 6, 54, 180, 830, 4620,...	13
1, 0, 2, 12, 6, 120, 560, 840, 10150,...	14
1, 0, 2, 12, 6, 180, 560, 1680,...	15
1, 0, 2, 12, 30, 120, 920, 3360,...	16
1, 0, 2, 12, 30, 180, 920, 4200,...	17
1, 0, 2, 12, 54, 240, 1280, 7560,...	18
1, 0, 2, 18, 30, 240, 1730, 5880,...	19
1, 0, 2, 18, 54, 300, 2090, 10500,...	20
1, 0, 2, 18, 102, 420, 2810, 21000,...	21
1, 0, 2, 36, 198, 840, 9200, 79800,...	22
1, 0, 4, 0, 36, 60, 400, 1680, 4900,...	23
1, 0, 4, 0, 60, 0, 1120, 0, 24220, 0,...	24
1, 0, 4, 0, 60, 60, 1120, 1680,...	25
1, 0, 4, 6, 36, 120, 490, 2520, 8260,...	26
1, 0, 4, 6, 36, 180, 490, 3780,...	27
1, 0, 4, 6, 36, 180, 490, 4200,...	28
1, 0, 4, 6, 60, 120, 1210, 3360,...	29
1, 0, 4, 6, 60, 180, 1210, 5040,...	30
1, 0, 4, 6, 60, 180, 1210, 5460,...	31
1, 0, 4, 12, 36, 240, 940, 4200,...	32
1, 0, 4, 12, 36, 240, 940, 4620,...	33
1, 0, 4, 12, 36, 300, 940, 6300,...	34
1, 0, 4, 12, 36, 360, 940, 8400,...	35
1, 0, 4, 12, 60, 240, 1660, 6720,...	36
1, 0, 4, 12, 60, 300, 1660, 8820,...	37
1, 0, 4, 12, 60, 360, 1660, 10920,...	38
1, 0, 4, 12, 84, 360, 2380, 13440,...	39
1, 0, 4, 12, 84, 420, 2380, 15120,...	40
1, 0, 4, 18, 60, 480, 2470, 14280,...	41
1, 0, 4, 18, 84, 540, 3190, 20160,...	42
1, 0, 4, 24, 60, 720, 3640, 21840,...	43
1, 0, 4, 24, 132, 780, 5800, 40320,...	44
1, 0, 6, 0, 90, 0, 1860, 0, 44730, 0,...	45
1, 0, 6, 0, 114, 0, 2940, 0, 87570,...	46
1, 0, 6, 6, 90, 180, 1950, 5460,...	47
1, 0, 6, 6, 90, 240, 1950, 8400,...	48
1, 0, 6, 6, 114, 240, 3030, 9660,...	49
1, 0, 6, 12, 90, 360, 2040, 10500,...	50
1, 0, 6, 12, 90, 420, 2040, 12600,...	51
1, 0, 6, 12, 90, 420, 2040, 13020,...	52
1, 0, 6, 12, 90, 420, 2400, 13860,...	53
1, 0, 6, 12, 90, 480, 2400, 16800,...	54
1, 0, 6, 12, 114, 360, 3120, 12600,...	55
1, 0, 6, 12, 114, 420, 3120, 15540,...	56
1, 0, 6, 12, 114, 480, 3480, 19320,...	57
1, 0, 6, 12, 114, 540, 3480, 22680,...	58
1, 0, 6, 12, 138, 480, 4560, 21840,...	59
1, 0, 6, 12, 138, 540, 4200, 23520,...	60
1, 0, 6, 18, 90, 540, 2850, 16380,...	61
1, 0, 6, 18, 90, 600, 2850, 18900,...	62
1, 0, 6, 18, 90, 660, 2850, 21840,...	63
1, 0, 6, 18, 114, 660, 3930, 25620,...	64
1, 0, 6, 18, 114, 720, 4290, 28980,...	65
1, 0, 6, 18, 138, 720, 5010, 32340,...	66
1, 0, 6, 18, 138, 780, 5370, 36120,...	67
1, 0, 6, 24, 138, 960, 6180, 43680,...	68
1, 0, 6, 24, 138, 1080, 6540, 50400,...	69
1, 0, 6, 24, 162, 1080, 7620, 55440,...	70
1, 0, 6, 30, 138, 1260, 7710, 57960,...	71
1, 0, 6, 30, 186, 1380, 10230, 78540,...	72
1, 0, 6, 30, 210, 1440, 11310, 87780,...	73
1, 0, 6, 48, 282, 2400, 22020,...	74
1, 0, 8, 0, 216, 0, 8000, 0, 343000,...	75
1, 0, 8, 12, 168, 600, 5300, 27720,...	76
1, 0, 8, 12, 192, 600, 6740, 30240,...	77
1, 0, 8, 12, 216, 720, 8540, 42000,...	78
1, 0, 8, 18, 168, 840, 5750, 37380,...	79
1, 0, 8, 18, 168, 900, 6110, 42000,...	80
1, 0, 8, 18, 192, 960, 7550, 49980,...	81
1, 0, 8, 24, 192, 1200, 8360, 60900,...	82
1, 0, 8, 24, 216, 1320, 10160, 74760,...	83
1, 0, 8, 24, 240, 1440, 11960, 89040,...	84
1, 0, 8, 30, 240, 1740, 13130,...	85
1, 0, 8, 30, 240, 1920, 13490,...	86
1, 0, 8, 36, 288, 2220, 18260,...	87
1, 0, 10, 24, 318, 1680, 16300,...	88
1, 0, 10, 24, 366, 1800, 20620,...	89
1, 0, 10, 30, 270, 1620, 11710,...	90
1, 0, 10, 30, 270, 1860, 13510,...	91
1, 0, 10, 30, 294, 1620, 13150,...	92
1, 0, 10, 30, 294, 1680, 13510,...	93
1, 0, 10, 30, 318, 1740, 15310,...	94
1, 0, 10, 30, 318, 2040, 17470,...	95
1, 0, 10, 36, 270, 1980, 13240,...	96
1, 0, 10, 36, 294, 2040, 15040,...	97
1, 0, 10, 36, 318, 2160, 17200,...	98
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1, 0, 10, 42, 342, 2640, 21250,...	100
1, 0, 10, 42, 414, 3300, 29890,...	101
1, 0, 10, 48, 390, 3240, 27820,...	102
1, 0, 10, 48, 438, 3720, 33940,...	103
1, 0, 10, 60, 510, 4920, 47080,...	104
1, 0, 10, 66, 558, 5400, 54010,...	105
1, 0, 12, 0, 540, 0, 33600, 0,...	106
1, 0, 12, 30, 396, 2160, 20370,...	107
1, 0, 12, 36, 420, 2700, 24420,...	108
1, 0, 12, 36, 564, 3600, 41700,...	109
1, 0, 12, 42, 468, 3360, 31350,...	110
1, 0, 12, 48, 540, 4320, 42240,...	111
1, 0, 12, 54, 540, 4620, 43770,...	112
1, 0, 12, 60, 636, 5760, 58620,...	113
1, 0, 14, 48, 594, 4200, 41900,...	114
1, 0, 14, 48, 642, 4680, 49820,...	115
1, 0, 14, 60, 666, 5640, 56120,...	116
1, 0, 14, 66, 762, 6960, 73490,...	117
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1, 0, 14, 84, 930, 9720, 108680,...	119
1, 0, 14, 108, 1074, 13440, 154760,...	120
1, 0, 16, 72, 912, 8280, 91600,...	121
1, 0, 16, 90, 1104, 11460, 133990,...	122
1, 0, 18, 84, 1446, 12960, 186840,...	123
1, 0, 18, 120, 1566, 18360, 237060,...	124
1, 0, 20, 96, 1188, 10860, 114320,...	125
1, 0, 20, 96, 1236, 10800, 119360,...	126
1, 0, 20, 96, 1236, 11100, 122240,...	127
1, 0, 20, 96, 1428, 14160, 179120,...	128
1, 0, 20, 102, 1188, 11400, 117290,...	129
1, 0, 20, 102, 1236, 11640, 125210,...	130
1, 0, 20, 102, 1284, 12180, 136010,...	131
1, 0, 20, 108, 1284, 12720, 139340,...	132
1, 0, 20, 114, 1380, 14340, 164630,...	133
1, 0, 20, 132, 1572, 18120, 221420,...	134
1, 0, 20, 132, 1812, 21720, 289100,...	135
1, 0, 22, 96, 1434, 12480, 148900,...	136
1, 0, 22, 108, 1530, 14760, 178240,...	137
1, 0, 22, 126, 1722, 18780, 236470,...	138
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1, 0, 24, 0, 2520, 0, 369600, 0,...	140
1, 0, 24, 120, 1896, 19200, 255480,...	141
1, 0, 24, 156, 2280, 27960, 387060,...	142
1, 0, 24, 192, 2904, 40320, 611520,...	143
1, 0, 26, 216, 3582, 54480, 874700,...	144
1, 0, 28, 216, 3516, 49680, 783640,...	145
1, 0, 32, 246, 4224, 61080, 998330,...	146
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1, 0, 56, 492, 10536, 168600,...	155
1, 0, 56, 528, 11112, 189180,...	156
1, 0, 58, 600, 13182, 247440,...	157
1, 0, 66, 816, 20214, 449640,...	158
1, 0, 68, 960, 28116, 689040,...	159
1, 0, 78, 1320, 37746, 1051920,...	160
1, 0, 90, 1518, 46086, 1327320,...	161
1, 0, 104, 1752, 56424, 1677120,...	162
1, 0, 152, 3840, 157656, 6428160,...	163
1, 0, 396, 17616, 1217052, 85220640,...	164
1, 0, 1944, 215808, 35295192,...	165

Appendix B: Mutations Between Minkowski Polynomials

How To Read These Tables

A typical table row is shown in Figure 0 below. The entry f is a Laurent polynomial in variables x, y, and z. Its Newton polytope $\mathrm{Newt}(f)$ is the three-dimensional reflexive polytope with ID equal to k in the Graded Ring Database. The expressions α_1, β_1, and γ_1 are rational functions in x, y, and z, and there is a mutation $\phi\colon (x,y,z) \mapsto (\alpha_1,\beta_1,\gamma_1)$ which relates f to the Laurent polynomial g_1 with ID l_1 in the same table. Thus evaluating $f(\alpha_1,\beta_1,\gamma_1)$ yields g_1. Similarly, there is a mutation $\psi : (x,y,z) \mapsto (\alpha_2,\beta_2,\gamma_2)$ which relates f to the Laurent polynomial g_2 with ID l_2 in the same table: evaluating $f(\alpha_2,\beta_2,\gamma_2)$ yields g_2.

Node	Laurent polynomial	Mutations	
$\vdots$	$\vdots$		$\vdots$
k	f	l_1:	$(\alpha_1,\beta_1,\gamma_1)$
		l_2:	$(\alpha_2,\beta_2,\gamma_2)$
		$\vdots$	$\vdots$
$\vdots$	$\vdots$		$\vdots$

Figure 0. A typical table row

Bucket 1

Bucket 1 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{1}{xyz}$$

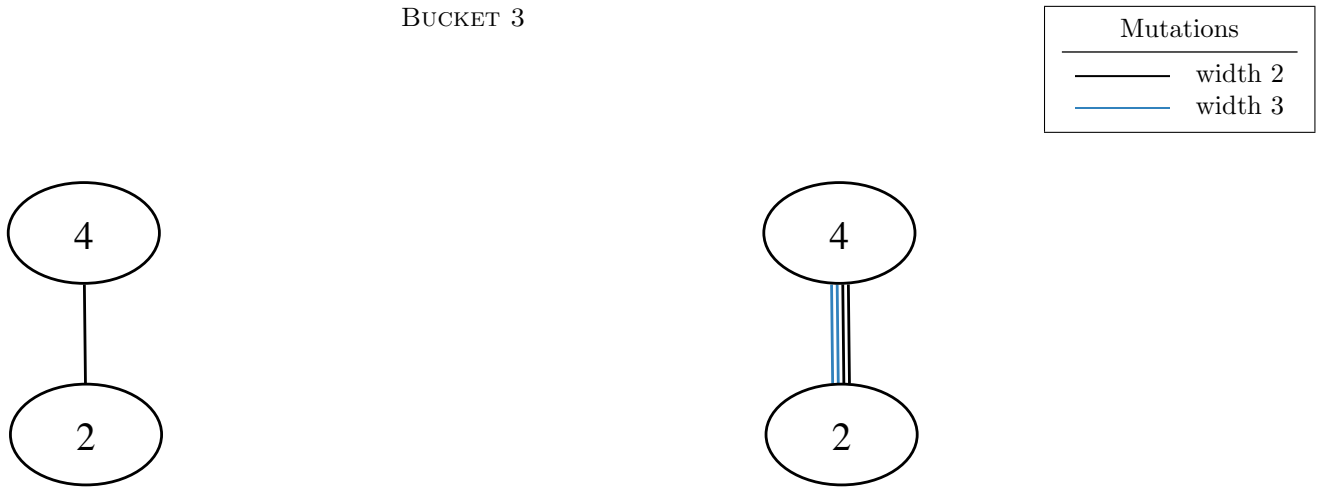
The Newton polytope of f has reflexive ID 1.

Bucket 2

Bucket 2 consists of a single Laurent polynomial:

$$f = x + \frac{x}{z} + y + z + \frac{1}{xy}$$

The Newton polytope of f has reflexive ID 7.



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 3. Mutations between Minkowski polynomials in bucket 3

Table 3. Laurent polynomials and selected mutations for bucket 3.

Node	Laurent polynomial	Mutations from Figure 3a
2	$x+y+z+\frac{2}{xy}+\frac{1}{x^2y^2z}$	4: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$
4	$x+y+z+\frac{1}{xz}+\frac{1}{xy}$	2: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$

Bucket 4

(A) A spanning tree consisting of width-2 mutations

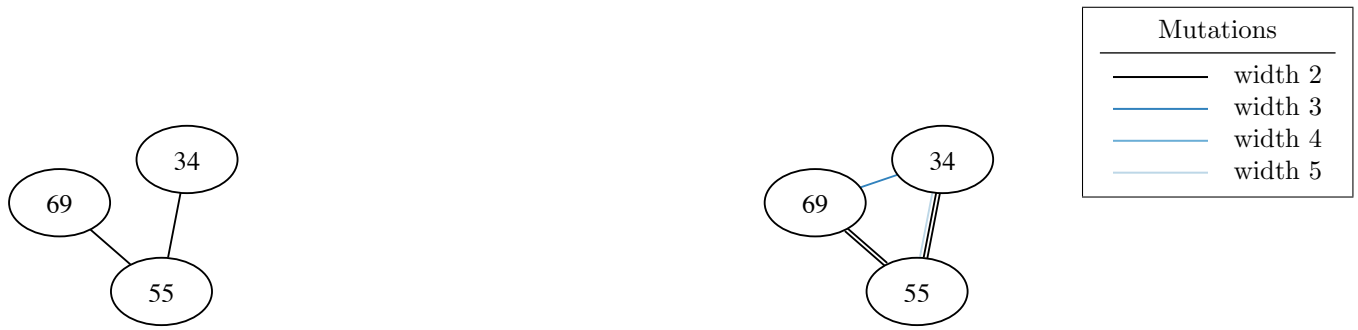
(B) All mutations

Figure 4. Mutations between Minkowski polynomials in bucket 4

Table 4. Laurent polynomials and selected mutations for bucket 4.

Node	Laurent polynomial	Mutations from Figure 4a
14	$x + y + z + \frac{z}{xy} + \frac{2}{xy} + \frac{1}{xyz}$	23: $\left(x, \frac{xyz+1}{xz}, xyz\right)$
23	$xyz + x + y + z + \frac{1}{xz} + \frac{1}{xy}$	14: $\left(x, \frac{yz}{z+1}, \frac{z+1}{xy}\right)$

Bucket 5



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 5. Mutations between Minkowski polynomials in bucket 5

Table 5. Laurent polynomials and selected mutations for bucket 5.

Node	Laurent polynomial	Mutations from Figure 5a
34	$x+y+z+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	55: $\left(x, \frac{(y+z)^2}{xyz^2}, \frac{y}{z}\right)$
55	$x+y+\frac{y}{z}+z+\frac{y}{xz^2}+\frac{2}{xz}+\frac{1}{xy}$	34: $\left(x, \frac{(z+1)^2}{xy}, \frac{(z+1)^2}{xyz}\right)$ 69: $\left(\frac{xyz+1}{xz}, x, \frac{1}{yz}\right)$
69	$xyz^2+xyz+x+y+z+\frac{1}{yz}+\frac{1}{xz}$	55: $\left(y, \frac{xy}{y+z}, \frac{y+z}{xyz}\right)$

Bucket 6

Bucket 6 consists of a single Laurent polynomial:

$$f = \frac{x^2}{yz} + x + y + z + \frac{1}{x}$$

The Newton polytope of f has reflexive ID 8.

Bucket 7

(A) A spanning tree consisting of width-2 mutations

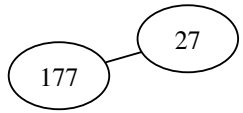
(B) All mutations are of width 2

Figure 7. Mutations between Minkowski polynomials in bucket 7

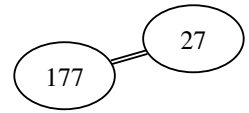
Table 7. Laurent polynomials and selected mutations for bucket 7.

Node	Laurent polynomial	Mutations from Figure 7a
6	$x + \frac{x}{yz} + y + z + \frac{1}{x}$	$42\colon \left(\frac{x^2yz+1}{x}, \frac{x^2yz+1}{x^2y}, \frac{x^2yz+1}{x^2z}\right)$
42	$xyz + x + y + z + \frac{1}{x} + \frac{1}{x^2z} + \frac{1}{x^2y}$	$6\colon \left(\frac{x^2+yz}{xyz}, \frac{x^2z}{x^2+yz}, \frac{x^2y}{x^2+yz}\right)$

Bucket 8



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 8. Mutations between Minkowski polynomials in bucket 8

Table 8. Laurent polynomials and selected mutations for bucket 8.

Node	Laurent polynomial	Mutations from Figure 8a
27	$xy + x + \frac{x}{yz} + y + z + \frac{1}{x}$	177: $\left(\frac{x^2yz}{xyz+y+z}, xyz + y + z, \frac{xy}{xyz+y+z}\right)$
177	$x^2yz + xyz + x + y + z + \frac{1}{x} + \frac{1}{x^2z} + \frac{1}{x^2y}$	27: $\left(\frac{xyz+x+yz^2}{yz}, \frac{y^2z^2}{xyz+x+yz^2}, \frac{xy}{xyz+x+yz^2}\right)$

Bucket 9

(A) A spanning tree consisting of width-2 mutations

(B) All mutations are of width 2

Figure 9. Mutations between Minkowski polynomials in bucket 9

Table 9. Laurent polynomials and selected mutations for bucket 9.

Node	Laurent polynomial	Mutations from Figure 9a
41	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+x+\frac{2x}{yz}+y+z+\frac{1}{x}$	292: $\left(\frac{x+y}{x^2}, \frac{z(x+y)}{x}, \frac{x+y}{x^2yz}\right)$ 797: $\left(\frac{(x^2yz+1)^2}{x^5y^2z^2}, \frac{(x^2yz+1)^2}{x^4y^2z}, \frac{(x^2yz+1)^2}{x^4yz^2}\right)$
292	$x+y+z+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	41: $\left(\frac{x^2+yz}{xyz}, \frac{x(x^2+yz)}{y^2z^2}, \frac{yz^2}{x^2+yz}\right)$
797	$x+y+z+\frac{1}{x}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^3yz}+\frac{1}{x^4yz^2}+\frac{1}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	41: $\left(\frac{(x^2+yz)^2}{xy^2z^2}, \frac{y^2z^3}{(x^2+yz)^2}, \frac{y^3z^2}{(x^2+yz)^2}\right)$

Bucket 10

(A) A spanning tree consisting of width-2 mutations

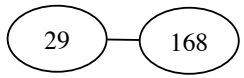
(B) All mutations are of width 2

Figure 10. Mutations between Minkowski polynomials in bucket 10

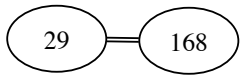
Table 10. Laurent polynomials and selected mutations for bucket 10.

Node	Laurent polynomial	Mutations from Figure 10a
5	$x+y+z+\frac{1}{yz}+\frac{1}{x}$	24: $\left(\frac{xyz+1}{x^2yz}, y, \frac{x}{xyz+1}\right)$
24	$x+y+z+\frac{1}{x}+\frac{1}{xy}+\frac{1}{x^2yz}$	5: $\left(\frac{xz+1}{x}, y, \frac{1}{yz(xz+1)}\right)$

Bucket 11



(a) A spanning tree consisting of width-2 mutations



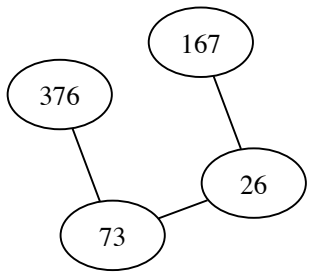
(b) All mutations are of width 2

Figure 11. Mutations between Minkowski polynomials in bucket 11

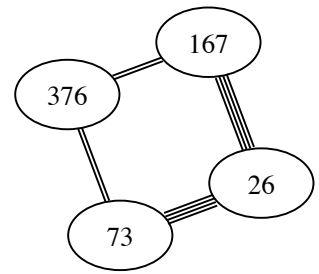
Table 11. Laurent polynomials and selected mutations for bucket 11.

Node	Laurent polynomial	Mutations from Figure 11a
29	$x + \frac{x}{y} + y + \frac{y}{z} + z + \frac{1}{x}$	168: $\left(\frac{x^2yz}{xyz+xz+y}, y, \frac{xy}{xyz+xz+y}\right)$
168	$x + yz + y + z + \frac{y}{x} + \frac{1}{x} + \frac{1}{xy} + \frac{1}{x^2z}$	29: $\left(\frac{xy+x+yz}{y}, y, \frac{xy}{z(xy+x+yz)}\right)$

Bucket 12



(A) A spanning tree consisting of width-2 mutations



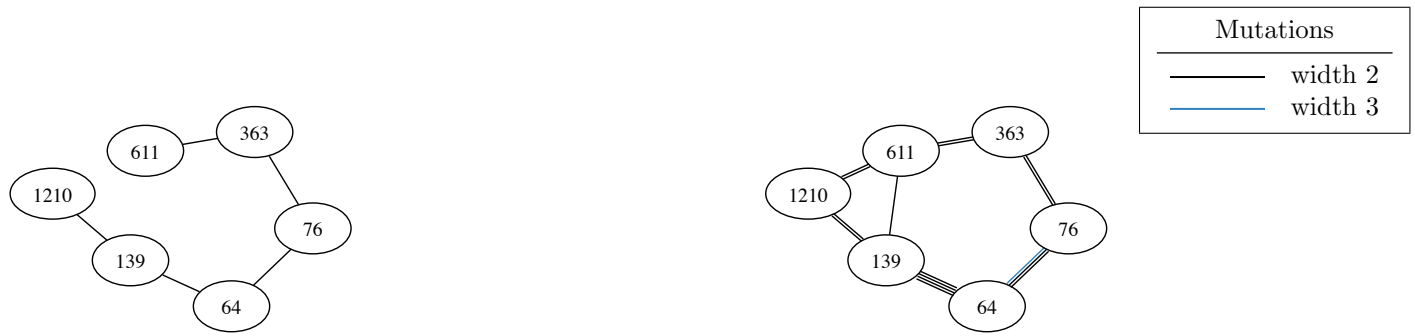
(B) All mutations are of width 2

Figure 12. Mutations between Minkowski polynomials in bucket 12

Table 12. Laurent polynomials and selected mutations for bucket 12.

Node	Laurent polynomial	Mutations from Figure 12a
26	$xy + x + y + z + \frac{1}{yz} + \frac{1}{x}$	73: $\left(\frac{xyz}{yz+1}, \frac{yz+1}{xy}, y\right)$ 167: $\left(\frac{xz+y}{xy}, y, \frac{xz+y}{x^2yz}\right)$
73	$x + y + z + \frac{z}{x} + \frac{1}{x} + \frac{1}{xy} + \frac{1}{xyz}$	26: $\left(\frac{xyz+1}{yz}, z, xy\right)$ 376: $\left(\frac{xyz+xz+y}{x^2yz}, \frac{x^2z}{xyz+xz+y}, \frac{xyz+xz+y}{x}\right)$
167	$x + y + z + \frac{z}{y} + \frac{y}{x} + \frac{1}{x} + \frac{1}{xy} + \frac{1}{x^2z}$	26: $\left(\frac{x+yz}{xyz}, y, \frac{x^2y}{x+yz}\right)$
376	$xyz + x + yz + y + z + \frac{y}{x} + \frac{1}{x} + \frac{1}{xy} + \frac{1}{x^2z}$	73: $\left(\frac{xy^2z+yz+1}{xyz}, \frac{1}{xy}, \frac{xy^2z^2}{xy^2z+yz+1}\right)$

Bucket 13



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 13. Mutations between Minkowski polynomials in bucket 13

Table 13. Laurent polynomials and selected mutations for bucket 13.

Node	Laurent polynomial	Mutations from Figure 13a
64	$\frac{x^2}{yz} + x + \frac{2x}{yz} + y + z + \frac{1}{yz} + \frac{1}{x}$	76: $(x, y, z(x+1))$ 139: $\left(\frac{xyz+1}{x^2yz}, \frac{xyz+1}{xy}, y\right)$
76	$xz + x + \frac{x}{yz} + y + z + \frac{1}{yz} + \frac{1}{x}$	64: $\left(x, y, \frac{z}{x+1}\right)$ 363: $\left(\frac{xyz}{y^2z+yz+1}, \frac{x}{y^2z+yz+1}, \frac{y^2z+yz+1}{xy}\right)$
139	$x + y + z + \frac{1}{x} + \frac{1}{xy} + \frac{2}{xyz} + \frac{2}{x^2yz} + \frac{1}{x^3y^2z^2}$	64: $\left(\frac{x+yz}{xyz}, z, \frac{y^2z}{x+yz}\right)$ 1210: $\left(\frac{x^3z^2}{(xz+y)^2}, \frac{(xz+y)^2}{x^3yz^2}, \frac{(xz+y)^2}{x^2z}\right)$
363	$x + y + z + \frac{yz}{x} + \frac{y}{x} + \frac{z}{x} + \frac{1}{x} + \frac{1}{xy} + \frac{1}{xyz}$	76: $\left(\frac{xyz+x+y^2z}{yz}, \frac{1}{yz}, xz\right)$ 611: $\left(x, \frac{xy+xz+z}{x}, \frac{z}{y(xy+xz+z)}\right)$

Continued on next page

Table 13 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 13a
611	$x+y+\frac{y}{z}+z+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	$363\colon \left(x, \frac{y}{xyz+yz+1}, \frac{xy^2z}{xyz+yz+1}\right)$
1210	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	$139\colon \left(\frac{(x^2yz+1)^2}{x^3y^2z^2}, \frac{1}{xy}, \frac{x^4y^2z^3}{(x^2yz+1)^2}\right)$

Bucket 14

(A) A spanning tree consisting of width-2 mutations

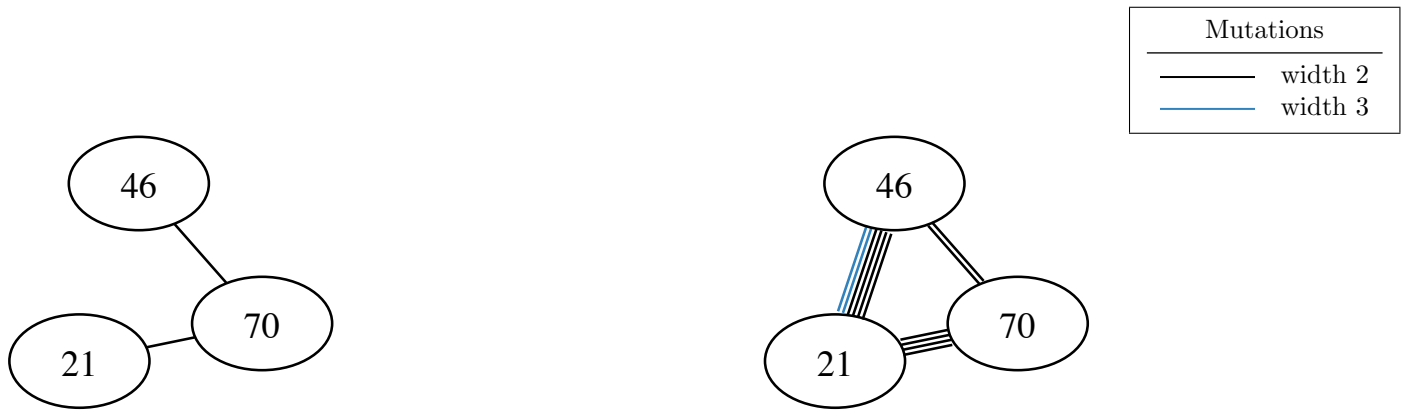
(B) All mutations are of width 2

Figure 14. Mutations between Minkowski polynomials in bucket 14

Table 14. Laurent polynomials and selected mutations for bucket 14.

Node	Laurent polynomial	Mutations from Figure 14a
20	$\frac{x^2}{y^2z} + x + \frac{2x}{y} + y + z + \frac{1}{x}$	28: $\left(x, \frac{x(y+z)}{yz}, \frac{z^2}{y+z}\right)$
28	$x + \frac{x}{z} + \frac{x}{y} + y + z + \frac{1}{x}$	20: $\left(x, \frac{x(x+yz)}{y^2z}, \frac{x+yz}{y}\right)$

Bucket 15



(A) A spanning tree consisting of width-2 mutations

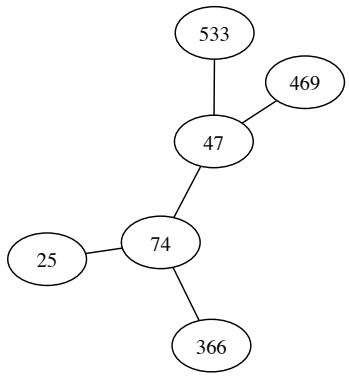
(B) All mutations

Figure 15. Mutations between Minkowski polynomials in bucket 15

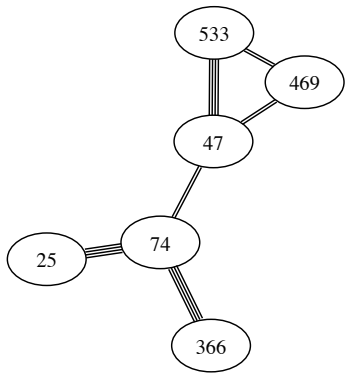
Table 15. Laurent polynomials and selected mutations for bucket 15.

Node	Laurent polynomial	Mutations from Figure 15a
21	$x + \frac{x}{y} + y + z + \frac{1}{yz} + \frac{1}{x}$	70: $\left(\frac{xy}{y+1}, \frac{x}{y+1}, z(y+1)\right)$
46	$x + y + z + \frac{z}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{1}{x^2yz}$	70: $\left(x, \frac{xyz+1}{xz}, yz\right)$
70	$x + yz + y + z + \frac{1}{x} + \frac{1}{xz} + \frac{1}{xy}$	21: $\left(x+y, \frac{x}{y}, \frac{yz}{x+y}\right)$ 46: $\left(x, \frac{xyz}{xz+1}, \frac{xz+1}{xy}\right)$

Bucket 16



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 16. Mutations between Minkowski polynomials in bucket 16

Table 16. Laurent polynomials and selected mutations for bucket 16.

Node	Laurent polynomial	Mutations from Figure 16a
25	$x+\frac{x}{z}+y+z+\frac{1}{x}+\frac{1}{xy}$	74: $\left(\frac{xy}{y+1}, z, y\right)$
47	$x+y+z+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y^2z}$	74: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$ 469: $\left(\frac{x^2yz+xz+1}{x^2z}, \frac{x^3yz}{x^2yz+xz+1}, \frac{x}{x^2yz+xz+1}\right)$ 533: $\left(\frac{x^3yz}{x^2yz+1}, \frac{x^2yz+1}{x^2z}, \frac{x}{x^2yz+1}\right)$
74	$x+y+z+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	25: $\left(\frac{x(z+1)}{z}, z, y\right)$ 47: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ 366: $\left(\frac{yz+y+z}{xyz}, \frac{xy}{yz+y+z}, \frac{xz}{yz+y+z}\right)$

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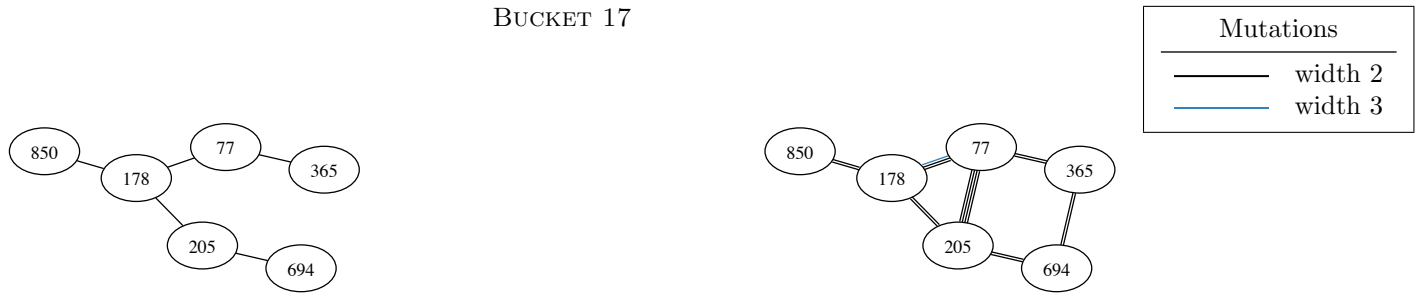
Table 16 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 16a
366	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	74: $\left(\frac{xy+xz+1}{x}, \frac{1}{xz}, \frac{1}{xy}\right)$
469	$x+y+z+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3y^2}$	47: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{1}{z(xy+xz+1)}\right)$
533	$x+y+z+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	47: $\left(\frac{(xy+1)(xy^2z+1)}{x^2y^2z}, \frac{x^3y^3z}{(xy+1)(xy^2z+1)}, \frac{x^2y^3z^2}{(xy+1)(xy^2z+1)}\right)$

Bucket 17



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 17. Mutations between Minkowski polynomials in bucket 17

Table 17. Laurent polynomials and selected mutations for bucket 17.

Node	Laurent polynomial	Mutations from Figure 17a
77	$xz + x + \frac{x}{y} + y + z + \frac{1}{yz} + \frac{1}{x}$	178: $\left(\frac{xyz}{yz+z+1}, y, \frac{yz+z+1}{xy}\right)$ 365: $\left(\frac{xy}{yz+y+1}, \frac{x}{yz+y+1}, z\right)$
178	$x + y + z + \frac{z}{x} + \frac{1}{x} + \frac{z}{xy} + \frac{2}{xy} + \frac{1}{xyz}$	77: $\left(\frac{xyz+xz+1}{yz}, y, xz\right)$ 205: $\left(x, \frac{xyz+1}{xy}, xyz\right)$ 850: $\left(\frac{x^2y^2}{xy^2+xyz+z}, \frac{xy^2+xyz+z}{xy}, \frac{x^2yz}{xy^2+xyz+z}\right)$
205	$xyz + x + yz + y + z + \frac{1}{x} + \frac{1}{xz} + \frac{1}{xy}$	178: $\left(x, \frac{z+1}{xy}, \frac{yz}{z+1}\right)$ 694: $\left(\frac{yz+y+z}{xyz}, y, z\right)$
365	$x + y + z + \frac{y}{x} + \frac{y}{xz} + \frac{z}{x} + \frac{1}{x} + \frac{1}{xz} + \frac{1}{xy}$	77: $\left(xz + x + y, \frac{x}{y}, z\right)$
694	$x + yz + y + z + \frac{yz}{x} + \frac{y}{x} + \frac{z}{x} + \frac{1}{x} + \frac{1}{xz} + \frac{1}{xy}$	205: $\left(\frac{yz+y+z}{xyz}, y, z\right)$
850	$x + y + z + \frac{z}{y} + \frac{1}{x} + \frac{2z}{xy} + \frac{2}{xy} + \frac{1}{x^2z} + \frac{1}{x^2y} + \frac{z}{x^2y^2} + \frac{1}{x^3y^2}$	178: $\left(\frac{x^2y+xyz+z}{xy}, \frac{x^2y^2}{x^2y+xyz+z}, \frac{xy^2z}{x^2y+xyz+z}\right)$

Bucket 18

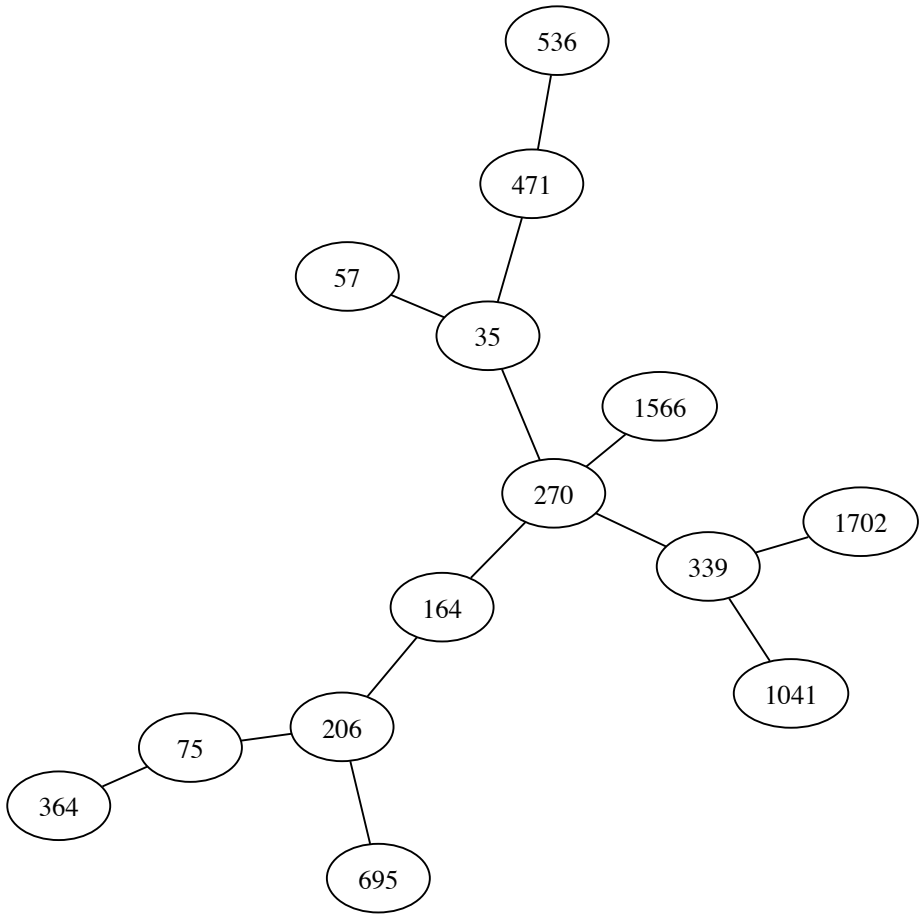


Figure 18a. Selected width-2 mutations between Minkowski polynomials in bucket 18

Table 18. Laurent polynomials and selected mutations for bucket 18.

Node	Laurent polynomial	Mutations from Figure 18a
35	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{2}{yz}+\frac{1}{x}$	57: $\left(\frac{xyz}{yz+1}, y, z\right)$ 270: $\left(\frac{(xyz+1)^2}{x^3y^2z^2}, \frac{(xyz+1)^2}{x^2y^2z}, y\right)$ 471: $\left(\frac{x^3y^2}{x^3y^2z+(xy+1)^2}, \frac{x^3y^2z+(xy+1)^2}{x^3yz}, \frac{x^4y^2z}{x^3y^2z+(xy+1)^2}\right)$
57	$x+\frac{x}{yz}+y+z+\frac{2}{yz}+\frac{1}{x}+\frac{1}{xyz}$	35: $\left(\frac{x(yz+1)}{yz}, y, z\right)$
75	$xz+x+y+z+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xyz}$	206: $\left(x(z+1), y, \frac{1}{yz}\right)$ 364: $\left(\frac{x}{y+z+1}, \frac{y+z+1}{xyz}, z\right)$
164	$\frac{x^2}{yz}+x+\frac{x}{y}+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{1}{x}$	206: $\left(x, y, \frac{x+1}{yz}\right)$ 270: $\left(\frac{x^2yz}{(xz+1)(xyz+1)}, y, \frac{x^3yz^2}{(xz+1)(xyz+1)}\right)$
206	$xz+x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{yz}+\frac{1}{x}$	75: $\left(\frac{xyz}{yz+1}, y, \frac{1}{yz}\right)$ 164: $\left(x, y, \frac{x+1}{yz}\right)$ 695: $\left(\frac{y+z}{xy}, \frac{y+z}{xyz}, \frac{xz}{y+z}\right)$
270	$x+y+z+\frac{1}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	35: $\left(\frac{(x+yz)^2}{xy^2z^2}, z, \frac{y^3z^2}{(x+yz)^2}\right)$ 164: $\left(\frac{(x+z)(x+yz)}{yz}, y, \frac{yz^2}{x(x+z)(x+yz)}\right)$ 339: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$ 1566: $\left(\frac{x^5y^2z^2}{xz+(x^2yz+1)^2}, \frac{xz+(x^2yz+1)^2}{x^4yz^2}, \frac{xz+(x^2yz+1)^2}{x^4y^2z}\right)$
339	$x+y+z+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{1}{x^3y^2z^2}$	270: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$ 1041: $\left(\frac{x}{yz+1}, \frac{yz+1}{xy}, \frac{yz+1}{xz}\right)$ 1702: $\left(\frac{yz+y+z}{xyz}, \frac{xz}{yz+y+z}, \frac{xy}{yz+y+z}\right)$
364	$x+y+z+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	75: $\left(\frac{xyz^2+xyz+1}{yz}, \frac{1}{xyz}, z\right)$
471	$x+y+z+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	35: $\left(\frac{y^2z^3+x(yz+1)^2}{y^2z^2}, \frac{y^3z^3}{y^2z^3+x(yz+1)^2}, \frac{y^2z^3}{x(y^2z^3+x(yz+1)^2)}\right)$ 536: $\left(x, y, \frac{xy+1}{x^2z}\right)$

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Table 18 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 18a
536	$x+y+z+\frac{y}{xz}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3y^2}$	$471\colon \left(x, y, \frac{xy+1}{x^2z}\right)$
695	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$206\colon \left(\frac{xz+1}{x}, \frac{1}{yz}, \frac{x}{y}\right)$
1041	$xyz+x+2yz+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	$339\colon \left(\frac{x^2yz+1}{xyz}, \frac{1}{xz}, \frac{1}{xy}\right)$
1566	$x+y+z+\frac{1}{x}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	$270\colon \left(\frac{xz+(x^2yz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{xz+(x^2yz+1)^2}, \frac{x^4y^2z^3}{xz+(x^2yz+1)^2}\right)$
1702	$x+2yz+y+z+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	$339\colon \left(\frac{xy+xz+1}{x}, \frac{1}{xy}, \frac{1}{xz}\right)$

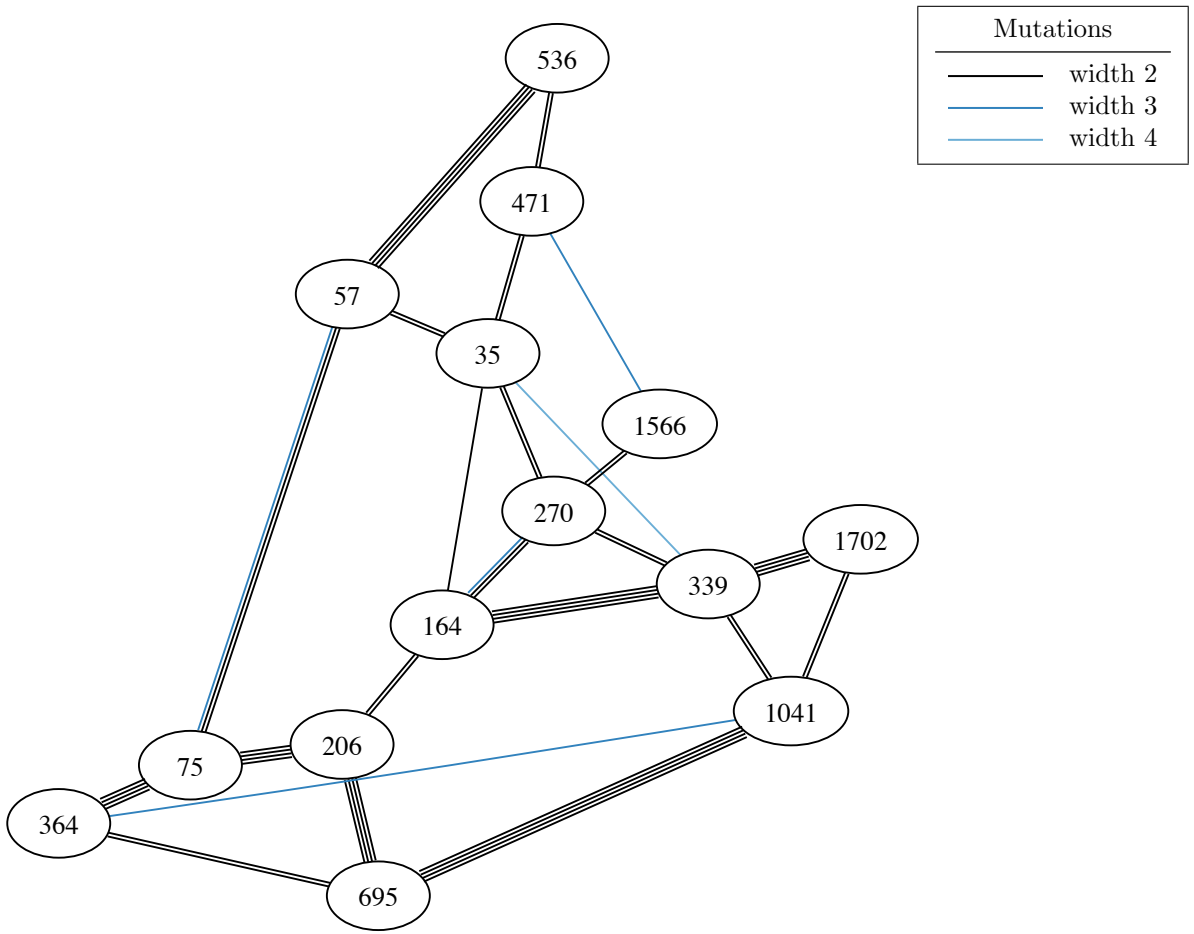


FIGURE 18B. All mutations between Minkowski polynomials in bucket 18

Bucket 19

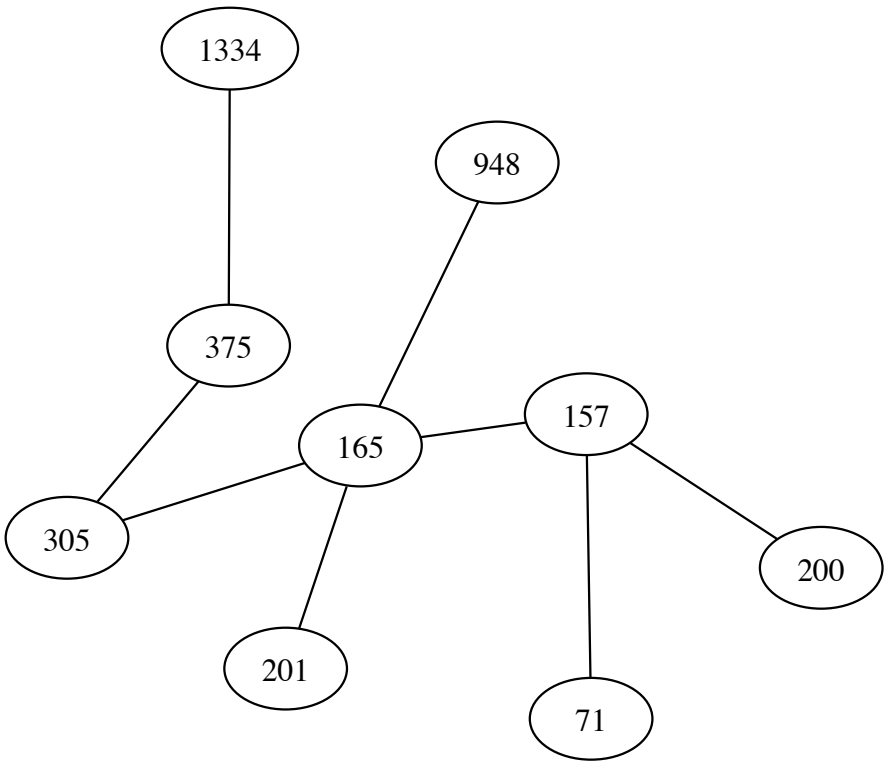


Figure 19a. Selected width-2 mutations between Minkowski polynomials in bucket 19

Table 19. Laurent polynomials and selected mutations for bucket 19.

Node	Laurent polynomial	Mutations from Figure 19a
71	$x+\frac{x}{z}+y+z+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xy}$	157: $\left(\frac{y+z+1}{xy}, y, \frac{y+z+1}{xyz}\right)$
157	$x+y+z+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	71: $\left(\frac{xyz+xy+1}{yz}, z, \frac{1}{xy}\right)$ 165: $\left(x+y, \frac{y}{x(x+y)}, \frac{1}{z(x+y)}\right)$ 200: $\left(x, \frac{y+1}{xyz}, y\right)$
165	$\frac{x^2z}{y}+xz+x+\frac{2x}{y}+y+z+\frac{1}{yz}+\frac{1}{x}$	157: $\left(\frac{x}{xy+1}, \frac{x^2y}{xy+1}, \frac{1}{xz}\right)$ 201: $\left(x, \frac{x+yz}{z}, \frac{1}{yz}\right)$ 305: $\left(\frac{xyz}{yz+(z+1)^2}, y, \frac{yz+(z+1)^2}{xy}\right)$ 948: $\left(\frac{xyz+1}{x^2yz}, \frac{xyz+1}{xy}, y\right)$
200	$x+yz+y+z+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	157: $\left(x, z, \frac{z+1}{xyz}\right)$
201	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{yz}+\frac{1}{x}$	165: $\left(x, \frac{y}{xz+1}, \frac{xz+1}{yz}\right)$
305	$x+y+z+\frac{z}{x}+\frac{1}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	165: $\left(\frac{xyz+(xz+1)^2}{yz}, y, xz\right)$ 375: $\left(x, \frac{(y+z)^2}{xy^2z}, \frac{z}{y}\right)$
375	$x+y+z+\frac{z}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	305: $\left(x, \frac{(z+1)^2}{xyz}, \frac{(z+1)^2}{xy}\right)$ 1334: $\left(\frac{x^3z^2}{x^2z^2+xyz+y}, \frac{x^2z^2+xyz+y}{x^2z}, y\right)$
948	$x+y+z+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	165: $\left(\frac{x+yz}{xyz}, z, \frac{y^2z}{x+yz}\right)$
1334	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	375: $\left(\frac{x^2y^2+xyz+z}{xy^2}, z, \frac{x^2y^3}{x^2y^2+xyz+z}\right)$

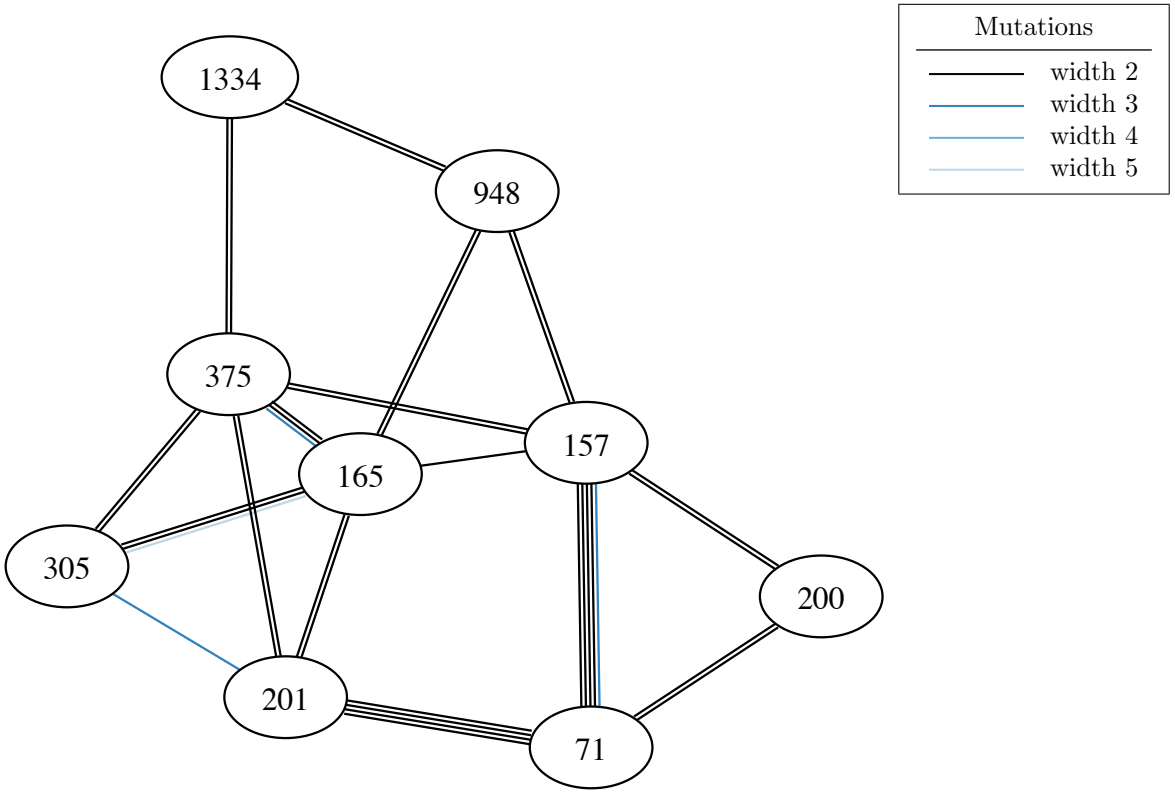
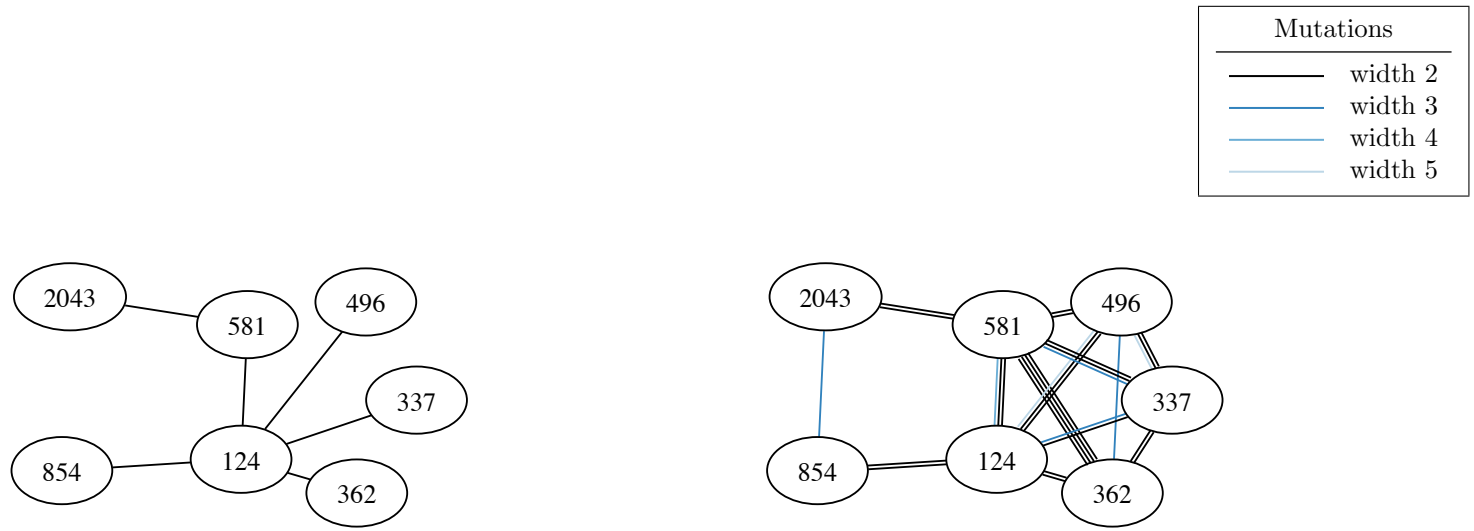


FIGURE 19B. All mutations between Minkowski polynomials in bucket 19

Bucket 20



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 20. Mutations between Minkowski polynomials in bucket 20

Table 20. Laurent polynomials and selected mutations for bucket 20.

Node	Laurent polynomial	Mutations from Figure 20a
124	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{2}{yz}+\frac{1}{x}$	337: $\left(\frac{x(x+yz)}{yz}, y, \frac{x+yz}{y}\right)$ 362: $\left(\frac{x(x+yz)}{yz}, \frac{x+yz}{z}, z\right)$ 496: $\left(\frac{(xyz+1)^2}{x^3y^2z^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$ 581: $\left(\frac{(xyz+1)^2}{x^3y^2z^2}, \frac{(xyz+1)^2}{x^2y^2z}, y\right)$ 854: $\left(\frac{x^3yz^2}{x^2z^2+y(xz+1)^2}, \frac{x^3z^2}{x^2z^2+y(xz+1)^2}, \frac{x^2z^2+y(xz+1)^2}{x^2z}\right)$
337	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{1}{x}$	124: $\left(\frac{xyz}{x+yz}, y, \frac{yz^2}{x+yz}\right)$
362	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{1}{x}$	124: $\left(\frac{xyz}{x+yz}, z, \frac{y^2z}{x+yz}\right)$
496	$x+y+z+\frac{1}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	124: $\left(\frac{(x+yz)^2}{xy^2z^2}, y, \frac{y^2z^3}{(x+yz)^2}\right)$
581	$x+y+z+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	124: $\left(\frac{(x+yz)^2}{xy^2z^2}, z, \frac{y^3z^2}{(x+yz)^2}\right)$ 2043: $\left(\frac{x^3z^2}{y+(xz+y)^2}, \frac{y+(xz+y)^2}{x^2z}, \frac{y+(xz+y)^2}{x^3yz^2}\right)$
854	$x+yz+y+z+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^3z^2}$	124: $\left(\frac{y^3z^2+x(yz+1)^2}{y^2z^2}, \frac{x}{y}, \frac{y^3z^3}{y^3z^2+x(yz+1)^2}\right)$
2043	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	581: $\left(\frac{xz+(x^2yz+1)^2}{x^3y^2z^2}, \frac{1}{xz}, \frac{x^4y^3z^2}{xz+(x^2yz+1)^2}\right)$

Bucket 21

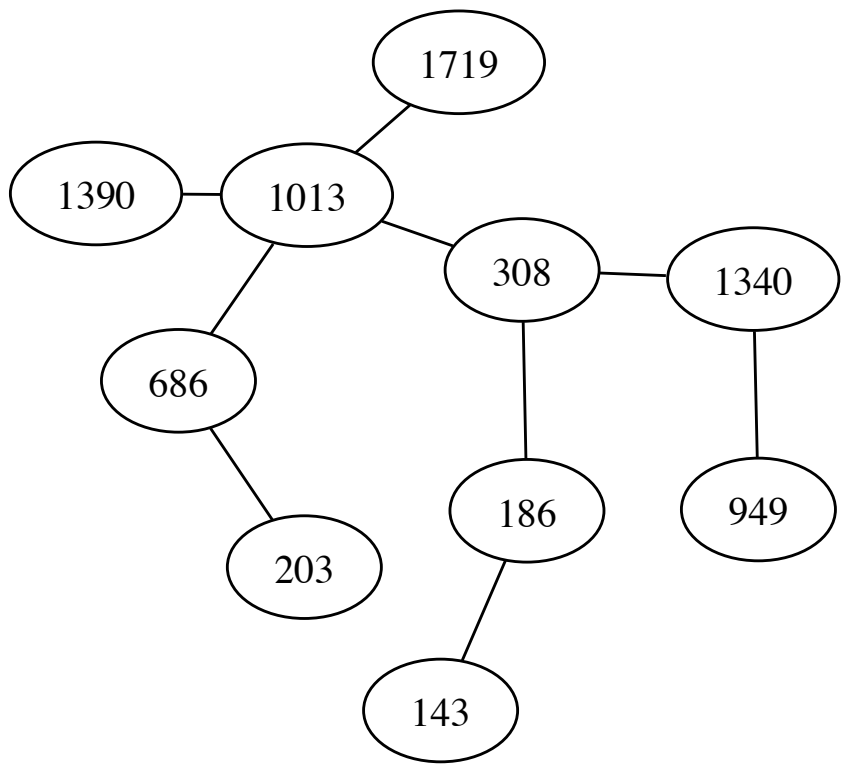


Figure 21a. Selected width-2 mutations between Minkowski polynomials in bucket 21

Table 21. Laurent polynomials and selected mutations for bucket 21.

Node	Laurent polynomial	Mutations from Figure 21a
143	$\frac{x^2}{yz}+x+\frac{3x}{yz}+y+z+\frac{3}{yz}+\frac{1}{x}+\frac{1}{xyz}$	186: $\left(x, y, \frac{(x+1)^2}{yz}\right)$
186	$\frac{x^2}{yz}+x+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}$	143: $\left(x, y, \frac{(x+1)^2}{yz}\right)$ 308: $\left(\frac{yz}{x(yz^2+yz+1)}, y, \frac{yz^2}{x(yz^2+yz+1)}\right)$
203	$\frac{x^2}{yz}+x+\frac{x}{yz}+y+z+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	686: $\left(\frac{xyz}{yz^2+yz+1}, \frac{x}{yz^2+yz+1}, y\right)$
308	$xz+x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{2}{yz}+\frac{1}{x}$	186: $\left(\frac{yz}{x^2+xyz+yz^2}, y, \frac{z}{x}\right)$ 1013: $\left(\frac{xyz+1}{x^2yz}, \frac{xyz+1}{xy}, y\right)$ 1340: $\left(\frac{x^3y^2z}{x^2y^2+z(xy+1)^2}, \frac{x^3y^2}{x^2y^2+z(xy+1)^2}, \frac{x^2y^2+z(xy+1)^2}{x^2y}\right)$
686	$x+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xyz}$	203: $\left(\frac{x^2+xyz+y^2z}{yz}, z, \frac{x}{yz}\right)$ 1013: $\left(x, \frac{xz}{x+y+1}, \frac{x+y+1}{xyz}\right)$
949	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^3z^2}$	1340: $\left(x, \frac{xy}{z(x^2y+xy+1)}, y\right)$
1013	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	308: $\left(\frac{x+yz}{xyz}, z, \frac{y^2z}{x+yz}\right)$ 686: $\left(x, \frac{1}{yz}, \frac{xyz+yz+1}{xz}\right)$ 1390: $\left(x, \frac{xz}{x+1}, \frac{1}{yz}\right)$ 1719: $\left(\frac{(y+z)(yz+z+1)}{xyz}, y, \frac{xy}{(y+z)(yz+z+1)}\right)$
1340	$xyz+x+yz+y+z+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^3y^2}$	308: $\left(\frac{y^3z^2+x(yz+1)^2}{y^2z^2}, \frac{y^3z^3}{y^3z^2+x(yz+1)^2}, \frac{x}{y}\right)$ 949: $\left(x, z, \frac{xz}{y(x^2z+xz+1)}\right)$
1390	$x+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{3y}{x^2}+\frac{1}{x^2z}+\frac{y}{x^3}$	1013: $\left(x, \frac{x}{yz(x+1)}, \frac{y(x+1)}{x}\right)$
1719	$x+y+z+\frac{2z}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	1013: $\left(\frac{(xz+y+1)(xyz+1)}{x^2yz}, y, \frac{1}{xz}\right)$

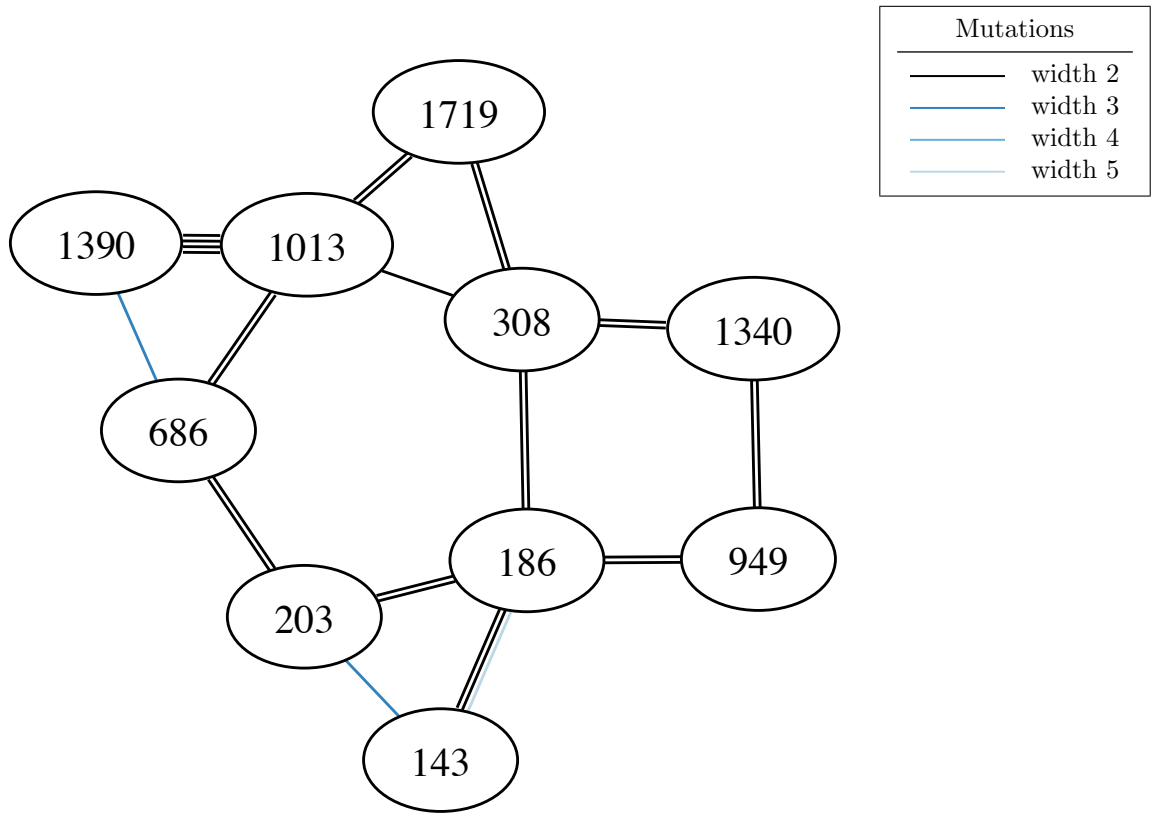
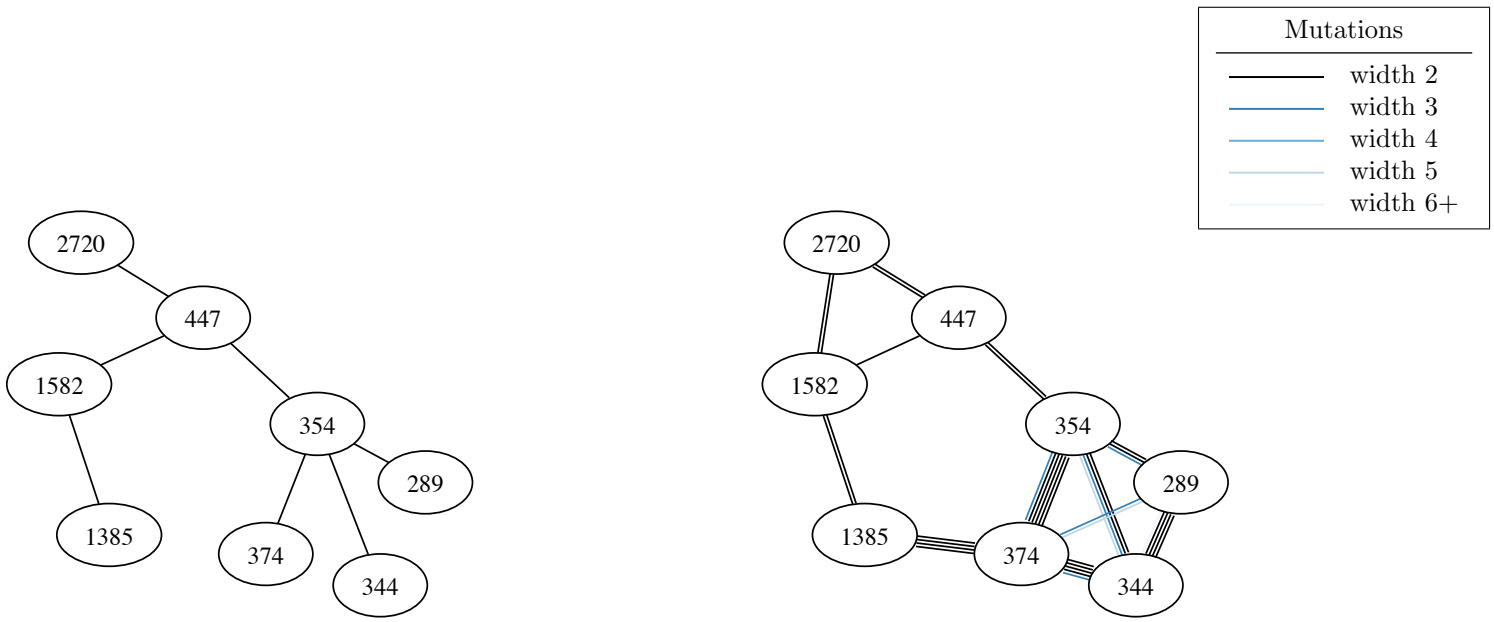


FIGURE 21B. All mutations between Minkowski polynomials in bucket 21

Bucket 22



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 22. Mutations between Minkowski polynomials in bucket 22

TABLE 22. Laurent polynomials and selected mutations for bucket 22.

Node	Laurent polynomial	Mutations from Figure 22a
289	$\frac{x^2}{yz}+x+\frac{4x}{yz}+y+z+\frac{6}{yz}+\frac{1}{x}+\frac{4}{xyz}+\frac{1}{x^2yz}$	354: $\left(x,y,z(x+1)^2\right)$
344	$xz+x+\frac{x}{yz}+y+z+\frac{3}{yz}+\frac{1}{x}+\frac{3}{xyz}+\frac{1}{x^2yz}$	354: $\left(\frac{1}{x},y,xz(x+1)\right)$
354	$x^2z+2xz+x+y+z+\frac{1}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{x^2yz}$	289: $\left(x,y,\frac{z}{(x+1)^2}\right)$ 344: $\left(\frac{1}{x},y,\frac{x^2z}{x+1}\right)$ 374: $\left(x,\frac{y(x+1)}{x},\frac{1}{yz}\right)$ 447: $\left(\frac{x(yz^2+yz+1)}{yz},y,\frac{yz^2}{x(yz^2+yz+1)}\right)$
374	$\frac{x^2}{yz}+x+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	354: $\left(\frac{1}{x},z(x+1),\frac{y}{x+1}\right)$
447	$xz^2+2xz+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+2z+\frac{2}{yz}+\frac{1}{x}$	354: $\left(\frac{x^2yz}{x^2yz^2+xyz+1},y,xz\right)$ 1582: $\left(\frac{x+y}{x^2},\frac{z(x+y)}{x},\frac{1}{yz}\right)$ 2720: $\left(\frac{(z+1)^2}{x},y(z+1)^2,\frac{1}{xyz}\right)$
1385	$x+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	1582: $\left(x,\frac{xyz^2}{xyz+yz+1},\frac{xyz+yz+1}{xz}\right)$
1582	$x+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	447: $\left(\frac{x+yz}{xyz},\frac{x+yz}{y^2z^2},\frac{y^2z}{x+yz}\right)$ 1385: $\left(x,\frac{xyz^2}{xyz+yz+1},\frac{xyz+yz+1}{xz}\right)$
2720	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	447: $\left(\frac{(x+yz)^2}{xy^2z^2},\frac{y^3z^2}{(x+yz)^2},\frac{x}{yz}\right)$

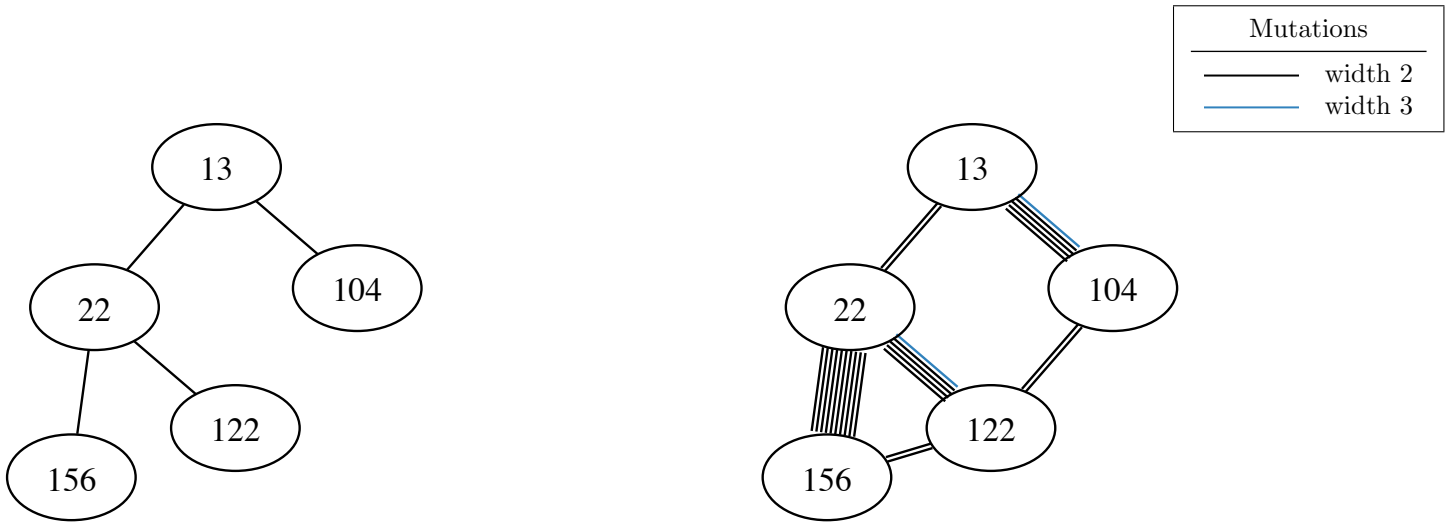
Bucket 23

Bucket 23 consists of a single Laurent polynomial:

$$f = x + y + \frac{y}{z} + z + \frac{2}{x} + \frac{1}{x^2 y}$$

The Newton polytope of f has reflexive ID 15.

Bucket 24



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 24. Mutations between Minkowski polynomials in bucket 24

Table 24. Laurent polynomials and selected mutations for bucket 24.

Node	Laurent polynomial	Mutations from Figure 24a
13	$x+y+z+\frac{2}{x}+\frac{1}{xyz}+\frac{1}{x^2y}$	22: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xyz}\right)$ 104: $\left(\frac{x^2yz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{x^2yz+(xy+1)^2}, \frac{x^2yz+(xy+1)^2}{x^4y^2z}\right)$
22	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xyz}$	13: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xyz}\right)$ 122: $\left(\frac{x^2y}{xy+xz+1}, \frac{xy+xz+1}{x}, \frac{x^2z}{xy+xz+1}\right)$ 156: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, y(xz+1)\right)$
104	$x+y+z+\frac{2}{x}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^3yz}+\frac{1}{x^4y^2z}$	13: $\left(\frac{x^2yz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{x^2yz+(xy+1)^2}, \frac{x^3yz}{x^2yz+(xy+1)^2}\right)$
122	$x+y+z+\frac{2}{x}+\frac{z}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3yz}$	22: $\left(\frac{xy^2z+yz+1}{xyz}, \frac{x^2y^2z}{xy^2z+yz+1}, \frac{x}{xy^2z+yz+1}\right)$
156	$xyz+x+y+z+\frac{2}{x}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3yz}$	22: $\left(x+y, \frac{yz}{x+y}, \frac{x}{y(x+y)}\right)$

Bucket 25

(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 25. Mutations between Minkowski polynomials in bucket 25

Table 25. Laurent polynomials and selected mutations for bucket 25.

Node	Laurent polynomial	Mutations from Figure 25a
53	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{1}{x^2y}$	258: $\left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{y+z(xy+1)^2}, \frac{y+z(xy+1)^2}{x^2y^2}\right)$
258	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	53: $\left(\frac{x+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{x+z(xy+1)^2}, \frac{x^2y^2z^2}{x+z(xy+1)^2}\right)$

Bucket 26

(A) A spanning tree consisting of width-2 mutations

(B) All mutations are of width 2

Figure 26. Mutations between Minkowski polynomials in bucket 26

Table 26. Laurent polynomials and selected mutations for bucket 26.

Node	Laurent polynomial	Mutations from Figure 26a
16	$x+y+z+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}$	45: $\left(x, y+z, \frac{z}{xy(y+z)}\right)$
45	$x+y+z+\frac{y^2}{xz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	16: $\left(x, \frac{y}{xyz+1}, \frac{xy^2z}{xyz+1}\right)$

Bucket 27

Bucket 27 consists of a single Laurent polynomial:

$$f = x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$$

The Newton polytope of f has reflexive ID 58.

Bucket 28

(A) A spanning tree consisting of width-2 mutations

(B) All mutations are of width 2

Figure 28. Mutations between Minkowski polynomials in bucket 28

Table 28. Laurent polynomials and selected mutations for bucket 28.

Node	Laurent polynomial	Mutations from Figure 28a
30	$x+\frac{x}{z}+y+z+\frac{1}{y}+\frac{1}{x}$	52: $\left(\frac{x^2yz}{xyz+xz+y}, \frac{xyz+xz+y}{xy}, \frac{x^2z}{xyz+xz+y}\right)$ 81: $\left(y, \frac{x^2z}{xz+y}, \frac{xy}{xz+y}\right)$
52	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}$	30: $\left(\frac{xy+yz+1}{y}, \frac{x}{z}, \frac{xy^2}{xy+yz+1}\right)$ 166: $\left(x, y+z, \frac{y(y+z)}{xz}\right)$
81	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{y}{x^2z}$	30: $\left(y+z, x, \frac{xy}{z(y+z)}\right)$
166	$x+y+z+\frac{y^2}{xz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	52: $\left(x, \frac{xyz}{xz+y}, \frac{y^2}{xz+y}\right)$

Bucket 29

(A) A spanning tree consisting of width-2 mutations

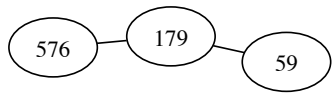
(B) All mutations are of width 2

Figure 29. Mutations between Minkowski polynomials in bucket 29

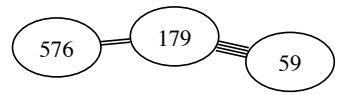
Table 29. Laurent polynomials and selected mutations for bucket 29.

Node	Laurent polynomial	Mutations from Figure 29a
60	$x+y+\frac{y}{z}+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	84: $\left(\frac{xy+1}{x}, xy, \frac{xy}{z}\right)$ 269: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
84	$xy+\frac{xy}{z}+x+y+z+\frac{1}{y}+\frac{1}{x}$	60: $\left(\frac{y+1}{x}, \frac{xy}{y+1}, \frac{y}{z}\right)$
269	$x+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	60: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 311: $(x, y, z(y+1))$
311	$x+yz+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	269: $\left(x, y, \frac{z}{y+1}\right)$

Bucket 30



(A) A spanning tree consisting of width-2 mutations



(B) All mutations are of width 2

Figure 30. Mutations between Minkowski polynomials in bucket 30

Table 30. Laurent polynomials and selected mutations for bucket 30.

Node	Laurent polynomial	Mutations from Figure 30a
59	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	179: $\left(x, y+z, \frac{y}{z}\right)$
179	$x+y+\frac{y}{z}+z+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	59: $\left(x, \frac{1}{y(x+1)}, \frac{xz}{x+1}\right)$ 576: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{xyz+(y+1)^2}{x^2z}\right)$
576	$x+y+z+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	179: $\left(\frac{xy^2+z(y+1)^2}{xyz}, y, \frac{x^2y^2}{xy^2+z(y+1)^2}\right)$

Bucket 31

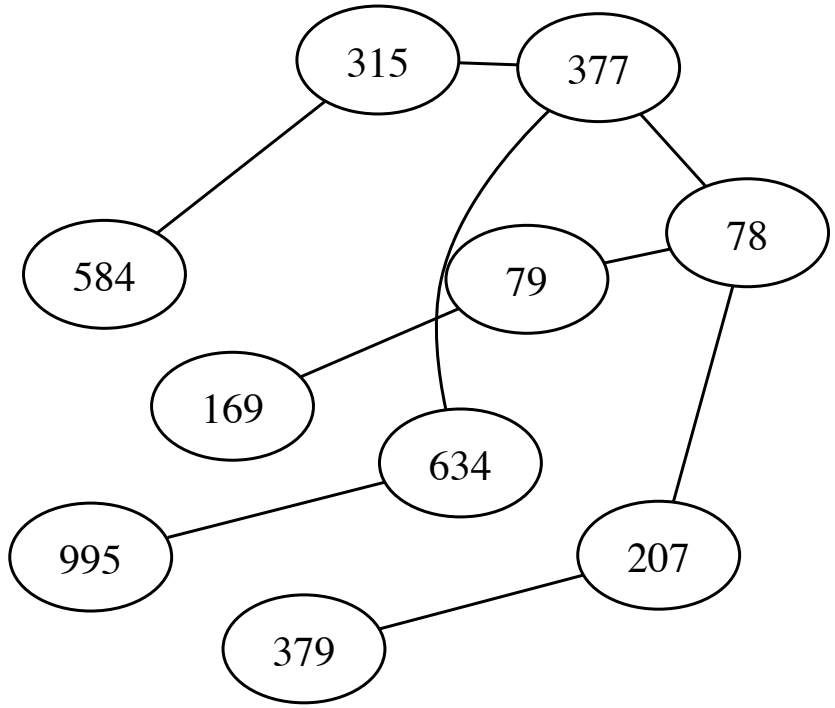


Figure 31a. Selected width-2 mutations between Minkowski polynomials in bucket 31

Table 31. Laurent polynomials and selected mutations for bucket 31.

Node	Laurent polynomial	Mutations from Figure 31a
78	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xyz}$	79: $\left(\frac{x+yz}{xyz}, \frac{x+yz}{xy}, \frac{x^2}{x+yz}\right)$ 207: $\left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$ 377: $\left(\frac{(xz+1)(xz+y)}{x^2yz}, \frac{(xz+1)(xz+y)}{x^2z}, \frac{xy}{(xz+1)(xz+y)}\right)$
79	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}$	78: $\left(\frac{yz+1}{xyz}, \frac{yz+1}{y}, \frac{y}{x}\right)$ 169: $\left(\frac{x^2y}{xyz+xy+z}, \frac{xyz+xy+z}{xz}, \frac{x^2yz}{xyz+xy+z}\right)$
169	$x+y+\frac{y}{z}+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2y}$	79: $\left(\frac{xy+yz+1}{y}, \frac{y^2z}{xy+yz+1}, \frac{z}{x}\right)$
207	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xyz}$	78: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$ 379: $\left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, z\right)$
315	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	377: $\left(x, y, \frac{z(y+1)}{y}\right)$ 584: $\left(x, \frac{xz}{y(x^2z+xz+1)}, z\right)$
377	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	78: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{y}{x}, \frac{y}{(yz+1)(xz+1)}\right)$ 315: $\left(x, y, \frac{yz}{y+1}\right)$ 634: $\left(x, \frac{xz}{y(x^2z+xz+1)}, \frac{1}{xy(x^2z+xz+1)}\right)$
379	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	207: $\left(\frac{xy+z+1}{y}, \frac{xy^2}{xy+z+1}, z\right)$
584	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	315: $\left(x, \frac{xz}{y(x^2z+xz+1)}, z\right)$
634	$xyz+x+yz+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	377: $\left(x, \frac{1}{xy+xz+y}, \frac{y}{x^2z}\right)$ 995: $\left(x, y, \frac{1}{x^2z(xy+y+1)}\right)$
995	$xy^2z+xyz+x+y^2z+2yz+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}$	634: $\left(x, y, \frac{1}{x^2z(xy+y+1)}\right)$

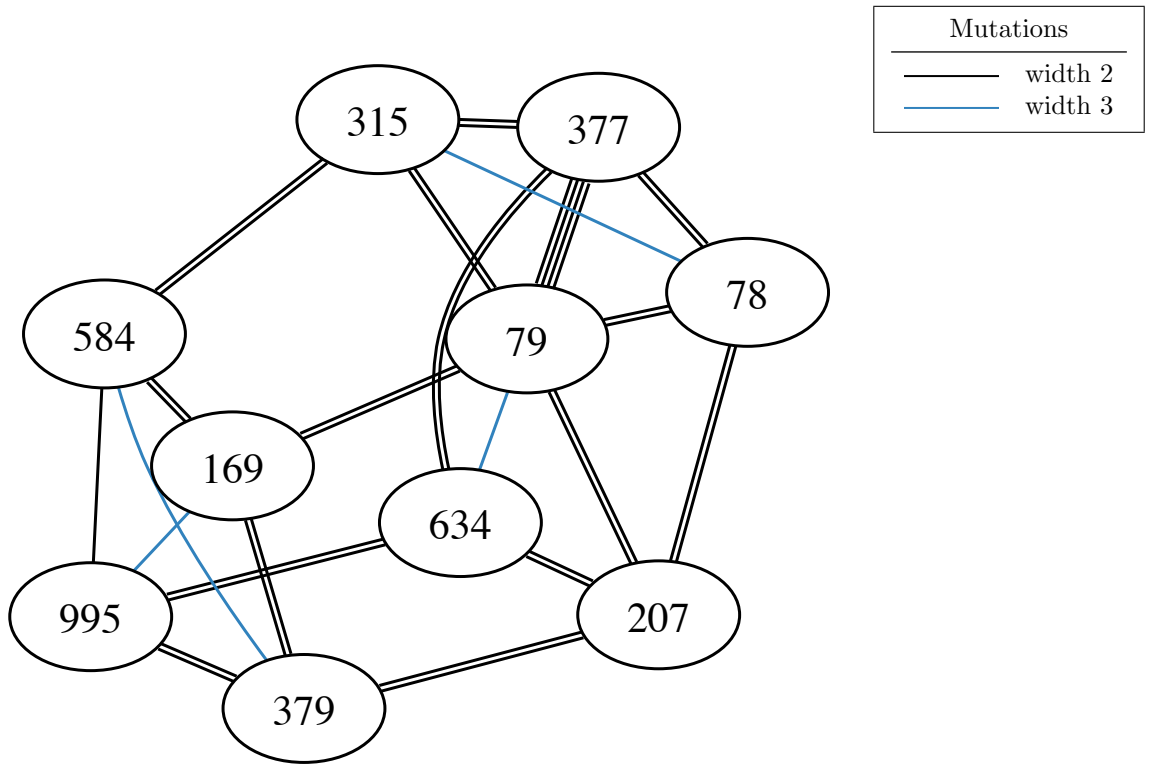


Figure 31b. All mutations between Minkowski polynomials in bucket 31

Bucket 32

(A) A spanning tree consisting of width-2 mutations

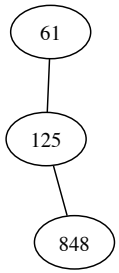
(B) All mutations are of width 2

Figure 32. Mutations between Minkowski polynomials in bucket 32

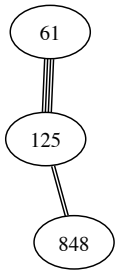
Table 32. Laurent polynomials and selected mutations for bucket 32.

Node	Laurent polynomial	Mutations from Figure 32a
36	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	65: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, z\right)$
65	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{x^2y^2z}$	36: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, z\right)$ 545: $\left(\frac{x^4y^2z}{x^3y^2z+x^2yz+1}, \frac{x^3y^2z+x^2yz+1}{x^3yz}, \frac{x^3y^2z+x^2yz+1}{x^3y^2}\right)$
467	$x+y+z+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	545: $\left(x, y, \frac{1}{x^2z(xy+1)}\right)$
545	$x+y+z+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	65: $\left(\frac{x^3y^2z+x^2yz+1}{x^2y^2z}, \frac{x^3y^3z}{x^3y^2z+x^2yz+1}, \frac{x^3y^2z^2}{x^3y^2z+x^2yz+1}\right)$ 467: $\left(x, y, \frac{1}{x^2z(xy+1)}\right)$

Bucket 33



(a) A spanning tree consisting of width-2 mutations



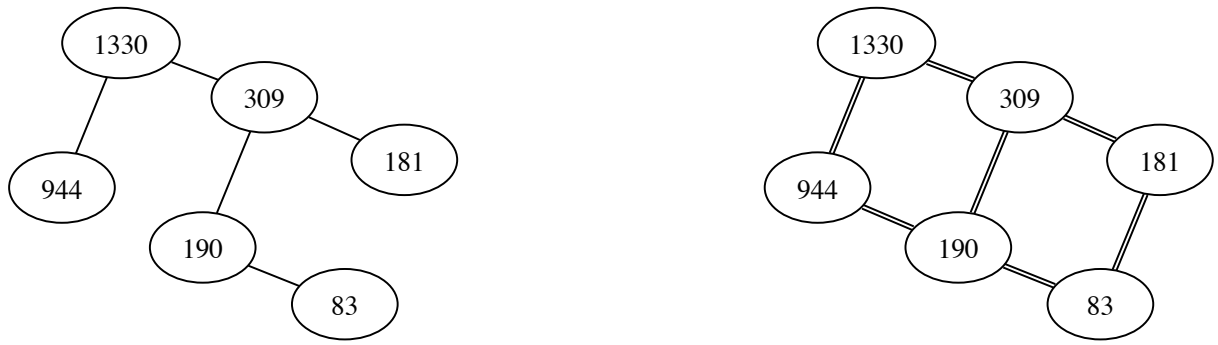
(b) All mutations are of width 2

Figure 33. Mutations between Minkowski polynomials in bucket 33

Table 33. Laurent polynomials and selected mutations for bucket 33.

Node	Laurent polynomial	Mutations from Figure 33a
61	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	125: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$
125	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	61: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$ 848: $\left(\frac{1+xz(xy+1)^2}{x^3yz}, \frac{x^4y^2z}{1+xz(xy+1)^2}, \frac{1+xz(xy+1)^2}{x^3y^2}\right)$
848	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	125: $\left(\frac{1+yz(xy+1)^2}{x^2y^2z}, \frac{x^3y^3z}{1+yz(xy+1)^2}, \frac{x^2y^3z^2}{1+yz(xy+1)^2}\right)$

Bucket 34



(a) A spanning tree consisting of width-2 mutations

(b) All mutations are of width 2

Figure 34. Mutations between Minkowski polynomials in bucket 34

Table 34. Laurent polynomials and selected mutations for bucket 34.

Node	Laurent polynomial	Mutations from Figure 34a
83	$xy + x + \frac{x}{z} + y + z + \frac{1}{y} + \frac{1}{x}$	190: $\left(\frac{1}{y}, \frac{x^2yz}{xyz+xz+1}, \frac{xyz+xz+1}{xy}\right)$
181	$x + y + z + \frac{y}{x} + \frac{y}{xz} + \frac{2}{x} + \frac{1}{xz} + \frac{1}{xy}$	309: $\left(x, \frac{xyz}{xz+z+1}, \frac{y}{xz+z+1}\right)$
190	$x + y + z + \frac{z}{y} + \frac{1}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{1}{x^2yz}$	83: $\left(\frac{xyz+x+yz}{z}, \frac{1}{x}, \frac{yz^2}{xyz+x+yz}\right)$ 309: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{x^2z}{xy+xz+1}\right)$
309	$x + y + z + \frac{z}{y} + \frac{2}{x} + \frac{z}{xy} + \frac{2}{xy} + \frac{1}{x^2y} + \frac{1}{x^2yz}$	181: $\left(x, \frac{xy+xz+y}{x}, \frac{y}{xz}\right)$ 190: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{x^2z}{xy+xz+1}\right)$ 1330: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$
944	$x + y + z + \frac{z}{x} + \frac{2}{x} + \frac{2}{xy} + \frac{z}{x^2y} + \frac{1}{x^2y} + \frac{1}{x^2yz} + \frac{1}{x^3y^2} + \frac{1}{x^3y^2z}$	1330: $\left(x, y, \frac{1}{z(x^2y+xy+1)}\right)$
1330	$x + y + z + \frac{z}{x} + \frac{2}{x} + \frac{z}{xy} + \frac{2}{xy} + \frac{2z}{x^2y} + \frac{1}{x^2y} + \frac{1}{x^2yz} + \frac{z}{x^3y^2} + \frac{1}{x^3y^2}$	309: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$ 944: $\left(x, y, \frac{1}{z(x^2y+xy+1)}\right)$

Bucket 35

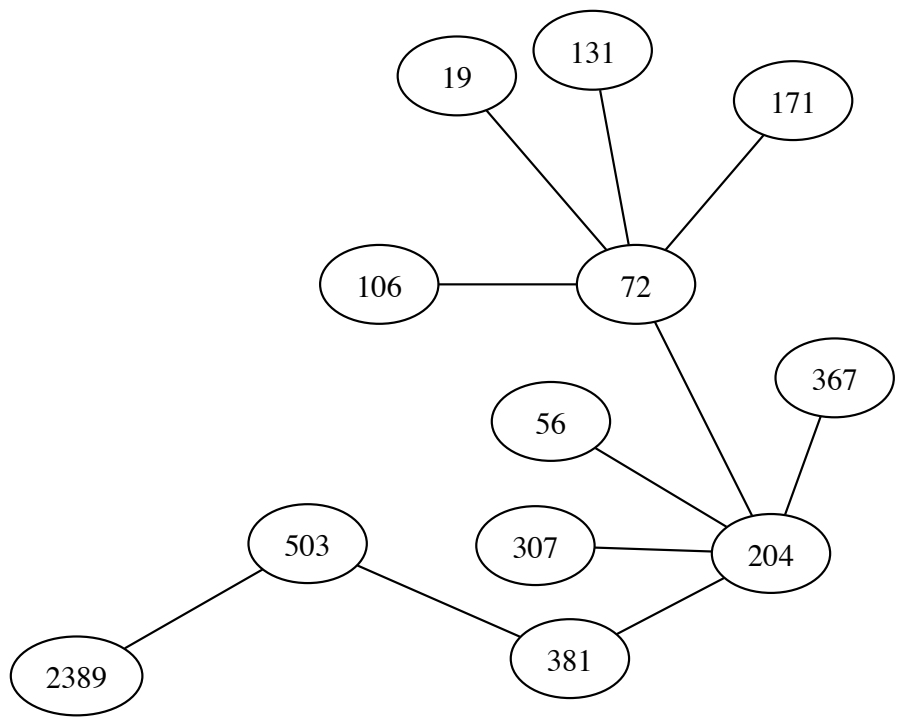


Figure 35a. Selected width-2 mutations between Minkowski polynomials in bucket 35

Table 35. Laurent polynomials and selected mutations for bucket 35.

Node	Laurent polynomial	Mutations from Figure 35a
19	$x+\frac{x}{y}+y+z+\frac{2}{x}+\frac{1}{x^2z}$	72: $\left(x+y, \frac{x+y}{z}, \frac{y}{x(x+y)}\right)$
56	$x+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{2}{x}+\frac{yz}{x^2}$	204: $\left(\frac{x+y}{xy}, z, \frac{x+y}{x^2z}\right)$
72	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{1}{x}$	19: $\left(\frac{x}{xz+1}, \frac{x^2z}{xz+1}, \frac{x}{y}\right)$ 106: $\left(\frac{xyz+y+1}{x^2yz}, \frac{xy}{xyz+y+1}, y\right)$ 131: $\left(\frac{x^2yz}{(y+1)(xz+1)}, \frac{xy}{(y+1)(xz+1)}, y\right)$ 171: $\left(\frac{xyz+1}{x^2yz}, \frac{xyz+1}{x}, \frac{xyz+1}{xz}\right)$ 204: $\left(y, \frac{xz+y}{x^2z}, \frac{xz+y}{x}\right)$
106	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	72: $\left(\frac{xyz+xy+z}{xz}, z, \frac{z}{y(xyz+xy+z)}\right)$
131	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	72: $\left(\frac{(z+1)(x+y)}{z}, z, \frac{xz}{y(z+1)(x+y)}\right)$
171	$x+yz+y+z+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{x^2yz}$	72: $\left(\frac{x+y}{xy}, \frac{yz}{x+y}, \frac{y}{z}\right)$
204	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2z}$	56: $\left(\frac{x+yz}{xyz}, \frac{x+yz}{x^2}, y\right)$ 72: $\left(\frac{xy+z}{yz}, x, \frac{z^2}{xy+z}\right)$ 307: $\left(\frac{(z+1)(y+z)}{xyz}, \frac{(z+1)(y+z)}{xy}, y\right)$ 367: $\left(\frac{x}{y+1}, \frac{xy}{y+1}, \frac{y+1}{xz}\right)$ 381: $\left(y, \frac{xy}{xyz+y+1}, \frac{x^2yz}{xyz+y+1}\right)$
307	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	204: $\left(\frac{(x+y)(xz+y)}{x^2yz}, z, \frac{y}{x}\right)$
367	$x+yz+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	204: $\left(x+y, \frac{y}{x}, \frac{1}{xz}\right)$
381	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	204: $\left(\frac{xy+xz+y}{x}, x, \frac{xz}{y(xy+xz+y)}\right)$ 503: $\left(\frac{x^3y^2z}{x^2y^2z+xyz+1}, \frac{x^2y^2z+xyz+1}{x^2yz}, z\right)$

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Table 35 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 35a
503	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^3z^2}$	$381\colon \left(\frac{x^2y^2z+xyz+1}{xy^2z}, \frac{x^2y^3z}{x^2y^2z+xyz+1}, z\right)$ $2389\colon \left(\frac{x^6y^3z^2}{x^5y^3z^2+x^2yz+1}, \frac{x^5y^3z^2+x^2yz+1}{x^5y^2z^2}, \frac{x^5y^3z^2+x^2yz+1}{x^5y^3z}\right)$
2389	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}+\frac{2}{x^5y^3z}+\frac{2}{x^6y^3z^2}+\frac{1}{x^7y^4z^2}$	$503\colon \left(\frac{x^5y^3z^2+x^2yz+1}{x^4y^3z^2}, \frac{x^5y^4z^2}{x^5y^3z^2+x^2yz+1}, \frac{x^5y^3z^3}{x^5y^3z^2+x^2yz+1}\right)$

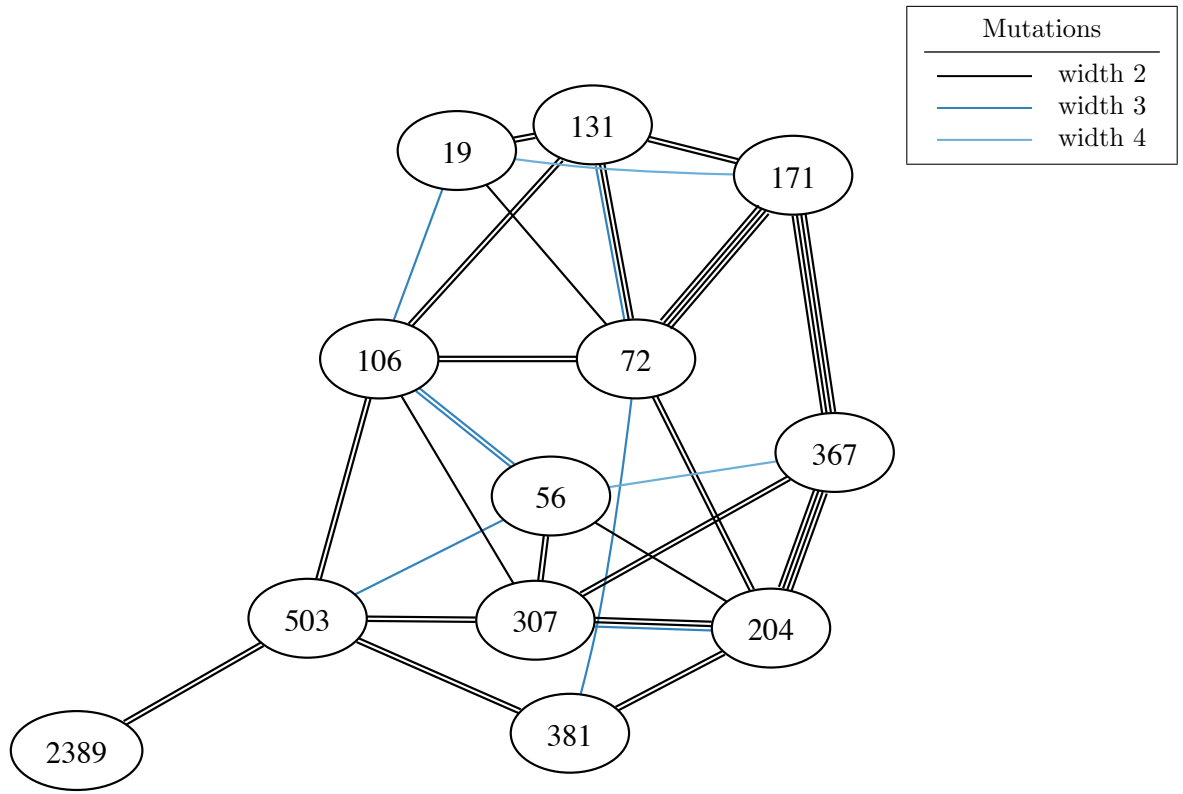
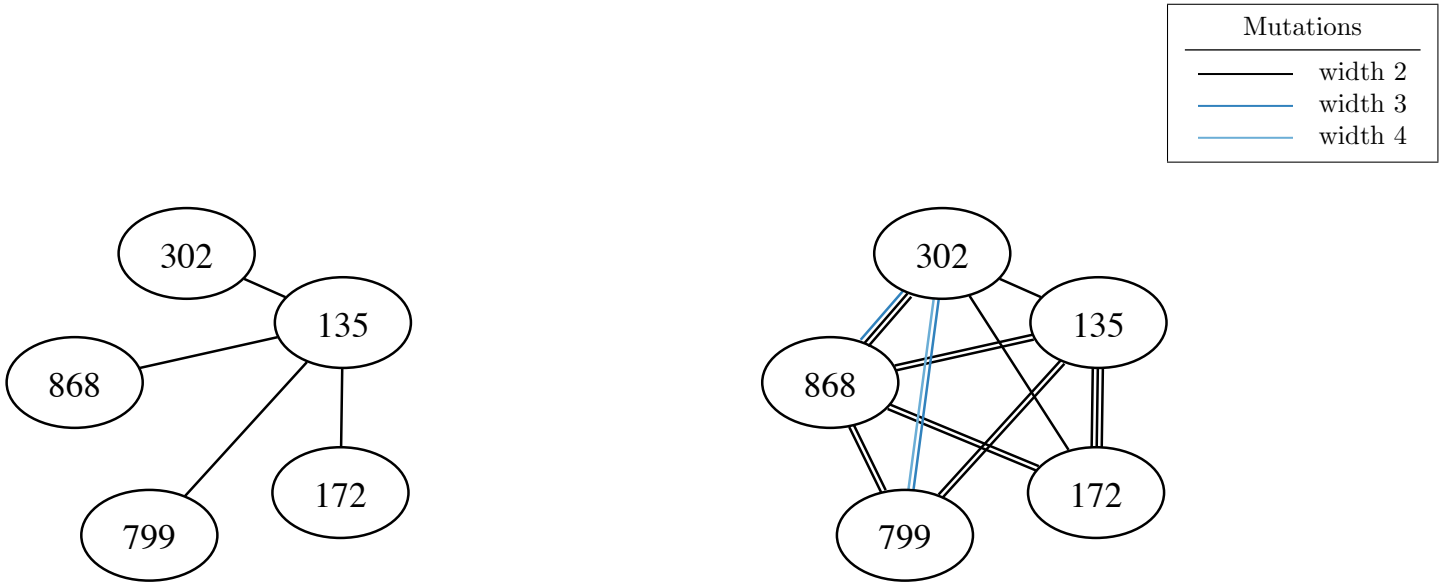


FIGURE 35B. All mutations between Minkowski polynomials in bucket 35

Bucket 36



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 36. Mutations between Minkowski polynomials in bucket 36

Table 36. Laurent polynomials and selected mutations for bucket 36.

Node	Laurent polynomial	Mutations from Figure 36a
135	$x+y+z+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	172: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xyz}\right)$ 302: $\left(\frac{xyz+x+y}{xy}, \frac{x^2}{xyz+x+y}, \frac{x^2yz}{xyz+x+y}\right)$ 799: $\left(\frac{x^4y^2z}{x^3y^2z+xy+1}, \frac{x^3y^2z+xy+1}{x^3yz}, \frac{x^2y}{x^3y^2z+xy+1}\right)$ 868: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$
172	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y^2z}$	135: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xyz}\right)$
302	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{1}{x}+\frac{y}{x^2}+\frac{1}{x^2z}+\frac{y}{x^3z}$	135: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{x^2z}{xy+xz+1}\right)$
799	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^3z}$	135: $\left(\frac{x^2y+xyz+z}{xy}, \frac{x^2y^2}{x^2y+xyz+z}, \frac{x}{z(x^2y+xyz+z)}\right)$
868	$x+y+z+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	135: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$

Bucket 37

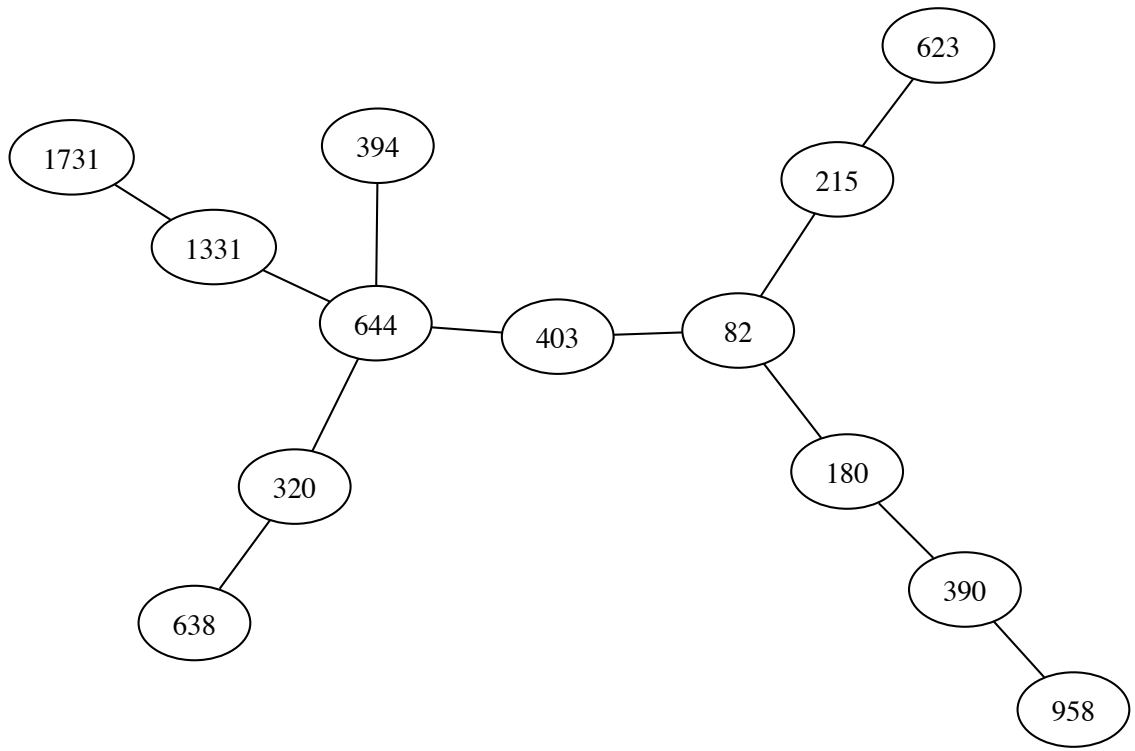


Figure 37a. Selected width-2 mutations between Minkowski polynomials in bucket 37

Table 37. Laurent polynomials and selected mutations for bucket 37.

Node	Laurent polynomial	Mutations from Figure 37a
82	$xy+x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}$	$180\colon \left(\frac{y+1}{x}, \frac{xy}{y+1}, z\right)$ $215\colon \left(y, \frac{x}{y+1}, z\right)$ $403\colon \left(\frac{xyz+1}{x}, \frac{1}{y}, \frac{xyz+1}{x^2z}\right)$
180	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$82\colon \left(\frac{xy+1}{x}, xy, z\right)$ $390\colon \left(x, \frac{1}{y(x+1)}, z\right)$
215	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}$	$82\colon (y(x+1), x, z)$ $623\colon \left(\frac{yz+y+z}{xyz}, \frac{yz+y+z}{xy}, \frac{xz}{yz+y+z}\right)$
320	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	$638\colon \left(x, y, \frac{z(xy+1)}{xy}\right)$ $644\colon \left(\frac{x^2z+xyz+y}{x^2yz}, \frac{x^3z}{x^2z+xyz+y}, \frac{x^2z+xyz+y}{x^2}\right)$
390	$x+y+\frac{y}{z}+z+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$180\colon \left(x, \frac{1}{y(x+1)}, z\right)$ $958\colon \left(\frac{z+y(z+1)^2}{xyz}, z, \frac{xz}{z+y(z+1)^2}\right)$
394	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$644\colon \left(\frac{yz+1}{y}, \frac{x}{yz+1}, \frac{xyz}{yz+1}\right)$
403	$x+yz+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{x^2z}$	$82\colon \left(\frac{x+yz}{xyz}, \frac{1}{y}, \frac{x^2y}{x+yz}\right)$ $644\colon \left(x, \frac{x}{y(xz+x+1)}, z\right)$
623	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$215\colon \left(\frac{xyz+x+y}{xy}, \frac{1}{xz}, \frac{y}{x}\right)$
638	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	$320\colon \left(x, y, \frac{xyz}{xy+1}\right)$
644	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{y}{x^2}+\frac{1}{x^2z}$	$320\colon \left(\frac{xy^2z+yz+1}{xyz}, \frac{xy^2z+yz+1}{x^2y^2z}, \frac{xy^2z^2}{xy^2z+yz+1}\right)$ $394\colon \left(y+z, \frac{y+z}{xy}, \frac{xz}{y+z}\right)$ $403\colon \left(x, \frac{x}{y(xz+x+1)}, z\right)$ $1331\colon \left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{z(xy+1)}{xy}\right)$

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Table 37 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 37a
958	$x+yz+y+z+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$390\colon \left(\frac{xyz+(y+1)^2}{xy}, \frac{1}{xz}, y\right)$
1331	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	$644\colon \left(x+y, \frac{x}{y(x+y)}, \frac{xz}{x+y}\right)$ $1731\colon \left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$
1731	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3z}{x^2y^2}+\frac{1}{x^3y^2}+\frac{z}{x^3y^3}$	$1331\colon \left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$

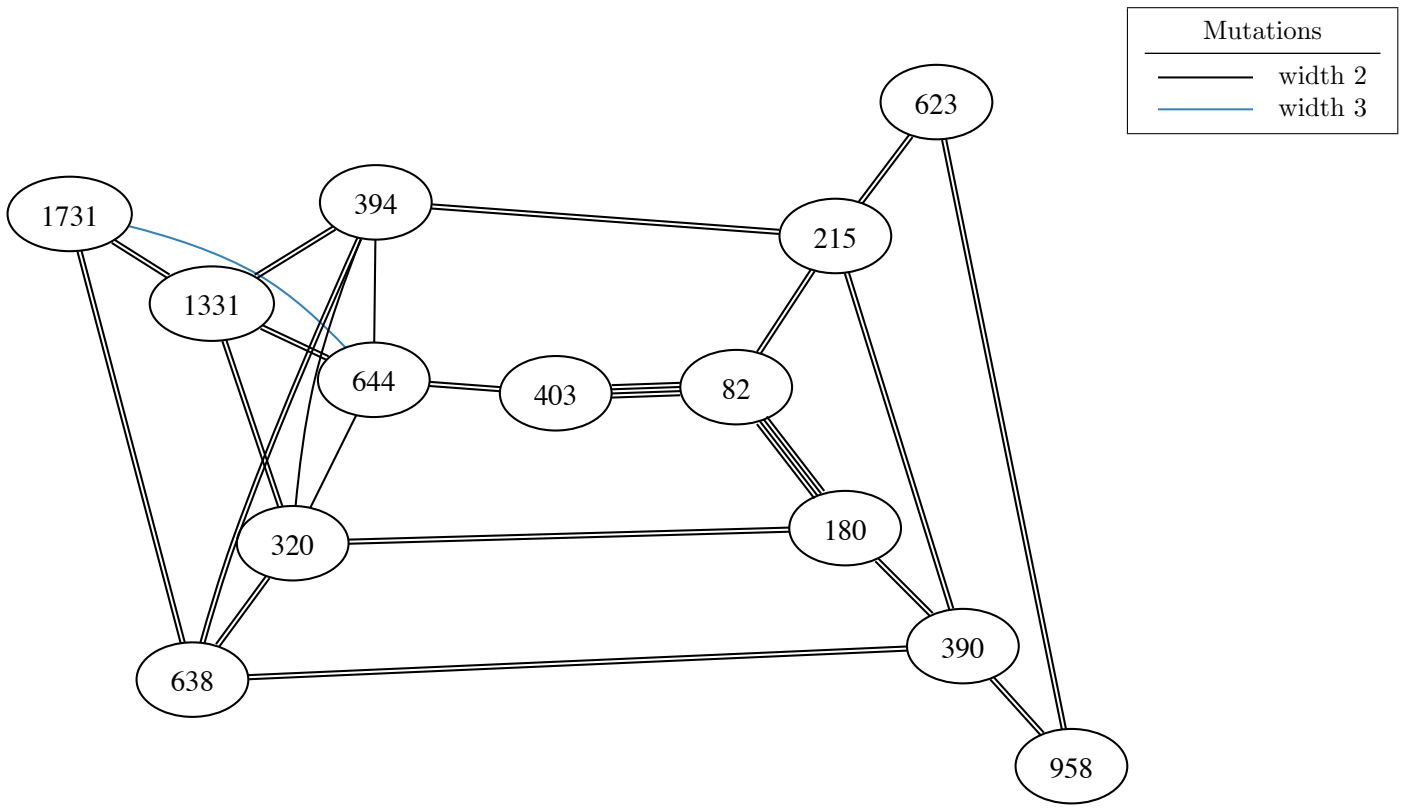

FIGURE 37B. All mutations between Minkowski polynomials in bucket 37

Bucket 38

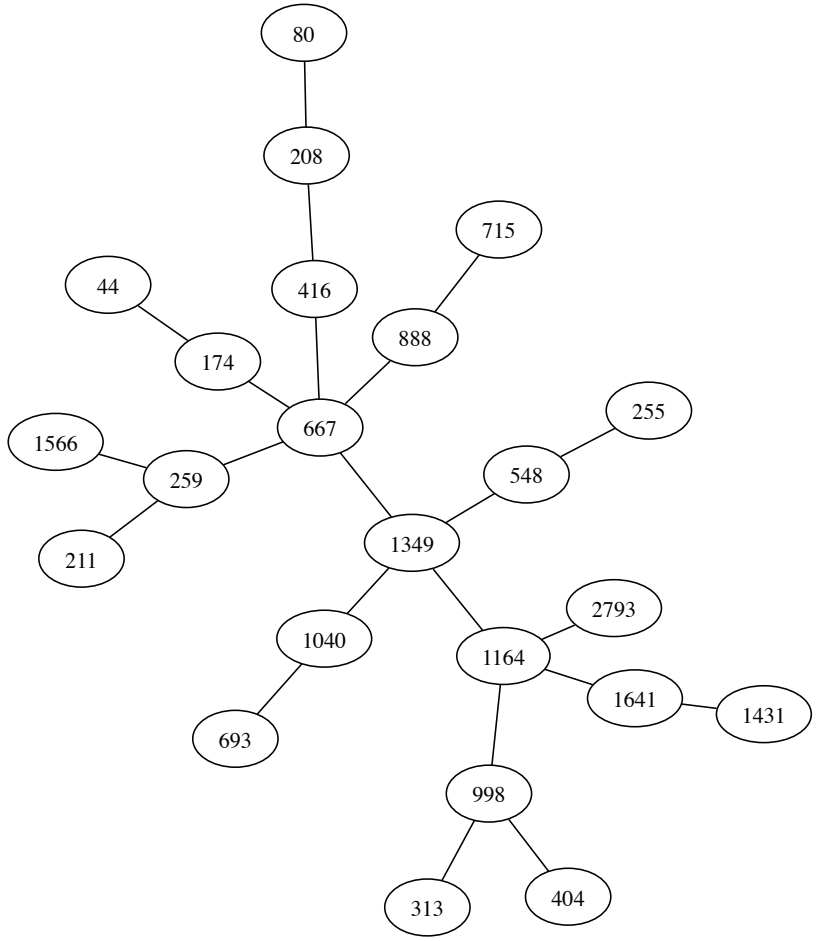

Figure 38a. Selected width-2 mutations between Minkowski polynomials in bucket 38

Table 38. Laurent polynomials and selected mutations for bucket 38.

Node	Laurent polynomial	Mutations from Figure 38a
44	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	174: $\left(x, \frac{xy}{x+1}, \frac{1}{yz}\right)$
80	$xy+x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xyz}$	208: $\left(\frac{x}{y+1}, y, \frac{1}{xz}\right)$
174	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2y}$	44: $\left(x, \frac{y(x+1)}{x}, \frac{x}{yz(x+1)}\right)$ 667: $\left(\frac{(xz+1)^2}{x^2z}, \frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^3yz^2}\right)$
208	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	80: $\left(x(y+1), y, \frac{1}{xz(y+1)}\right)$ 416: $\left(x, \frac{x}{y(x+1)}, z\right)$
211	$\frac{xy}{z}+x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{1}{x}$	259: $\left(\frac{xyz+y+1}{x^2yz}, \frac{xy}{xyz+y+1}, y\right)$
255	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	548: $\left(x, y+z, \frac{y}{xz(y+z)}\right)$
259	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	211: $\left(\frac{xyz+xy+z}{xz}, z, \frac{z}{y(xyz+xy+z)}\right)$ 667: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$ 1566: $\left(\frac{x^4y^2z}{x^3y^2z+xy+1}, \frac{x^3y^2z+xy+1}{x^3yz}, \frac{x^3y^2z+xy+1}{x^3y^2}\right)$
313	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	998: $\left(x, \frac{(xz+1)^2}{x^2yz}, \frac{1}{x^2z}\right)$
404	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}$	998: $\left(\frac{x^2yz+xz+1}{x^2z}, \frac{x^3yz}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2y}\right)$
416	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	208: $\left(x, \frac{x}{y(x+1)}, z\right)$ 667: $\left(\frac{(xz+1)(xyz+1)}{x^2yz}, \frac{(xz+1)(xyz+1)}{x^3yz^2}, \frac{x^2z}{(xz+1)(xyz+1)}\right)$
548	$x+y+z+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	255: $\left(x, \frac{xy^2z}{xyz+1}, \frac{y}{xyz+1}\right)$ 1349: $\left(x, z(y+1)^2, y\right)$

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Table 38 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 38a
667	$x+y+z+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3yz^2}$	174: $\left(\frac{(xy+1)^2}{x^2y}, \frac{1}{yz}, \frac{x^3y^2}{(xy+1)^2}\right)$ 259: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ 416: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{1}{xz}, \frac{x^2}{(yz+1)(x+y)}\right)$ 888: $\left(x, \frac{xy}{(z+1)(x+z)}, \frac{(z+1)(x+z)}{x^2yz}\right)$ 1349: $\left(\frac{y+z(y+1)^2}{xyz}, \frac{xy}{y+z(y+1)^2}, \frac{xz}{y+z(y+1)^2}\right)$
693	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1040: $(x, y, z(y+1))$
715	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	888: $\left(\frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}, z\right)$
888	$x+y+z+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	667: $\left(x, \frac{(xyz+1)(x^2yz+1)}{x^3yz^2}, \frac{1}{xyz}\right)$ 715: $\left(\frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}, z\right)$
998	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^3yz}$	313: $\left(x, \frac{(xz+1)^2}{x^2yz}, \frac{1}{x^2z}\right)$ 404: $\left(\frac{xy^2z+yz+1}{xyz}, \frac{x^2y^2z}{xy^2z+yz+1}, \frac{xy^2z^2}{xy^2z+yz+1}\right)$ 1164: $\left(x, y, \frac{z(xy+x+1)}{xy}\right)$
1040	$x+yz+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	693: $\left(x, y, \frac{z}{y+1}\right)$ 1349: $\left(x, \frac{1}{z(y+1)(x+1)}, y\right)$
1164	$x+y+z+\frac{2z}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	998: $\left(x, y, \frac{xyz}{xy+x+1}\right)$ 1349: $\left(x, \frac{xyz+yz+1}{xz}, \frac{y(xyz+yz+1)}{x}\right)$ 1641: $\left(\frac{x+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{x+z(xy+1)^2}, \frac{x^2y^2z^2}{x+z(xy+1)^2}\right)$ 2793: $\left(\frac{x^2y^2}{xy^2+z}, \frac{xy^2+z}{xy}, \frac{z(xy^2+z)}{xy^2}\right)$

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Table 38 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 38a
1349	$x+y^2z+2yz+y+z+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$548\colon \left(x, z, \frac{y}{(z+1)^2}\right)$ $667\colon \left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{1}{xz}, \frac{1}{xy}\right)$ $1040\colon \left(x, z, \frac{1}{y(z+1)(x+1)}\right)$ $1164\colon \left(x, \frac{xyz}{xz+y+z}, \frac{xz+y+z}{xy^2}\right)$
1431	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^3y^2}+\frac{1}{x^3y^2z}$	$1641\colon \left(x, y, \frac{z(x^2y+xy+1)}{x^2y}\right)$
1566	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	$259\colon \left(\frac{x^3y^2z+xy+1}{x^2y^2z}, \frac{x^3y^3z}{x^3y^2z+xy+1}, \frac{x^3y^2z^2}{x^3y^2z+xy+1}\right)$
1641	$x+y+z+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{1}{x^2y}+\frac{2z}{x^3y}+\frac{1}{x^3y^2}+\frac{z}{x^4y^2}$	$1164\colon \left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{y+z(xy+1)^2}, \frac{y+z(xy+1)^2}{x^2y^2}\right)$ $1431\colon \left(x, y, \frac{x^2yz}{x^2y+xy+1}\right)$
2793	$x+y+z+\frac{2z}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3y^2}+\frac{2z}{x^3y^3}+\frac{z^2}{x^3y^4}$	$1164\colon \left(\frac{xy^2+z}{y^2}, \frac{xy^3}{xy^2+z}, \frac{xy^2z}{xy^2+z}\right)$

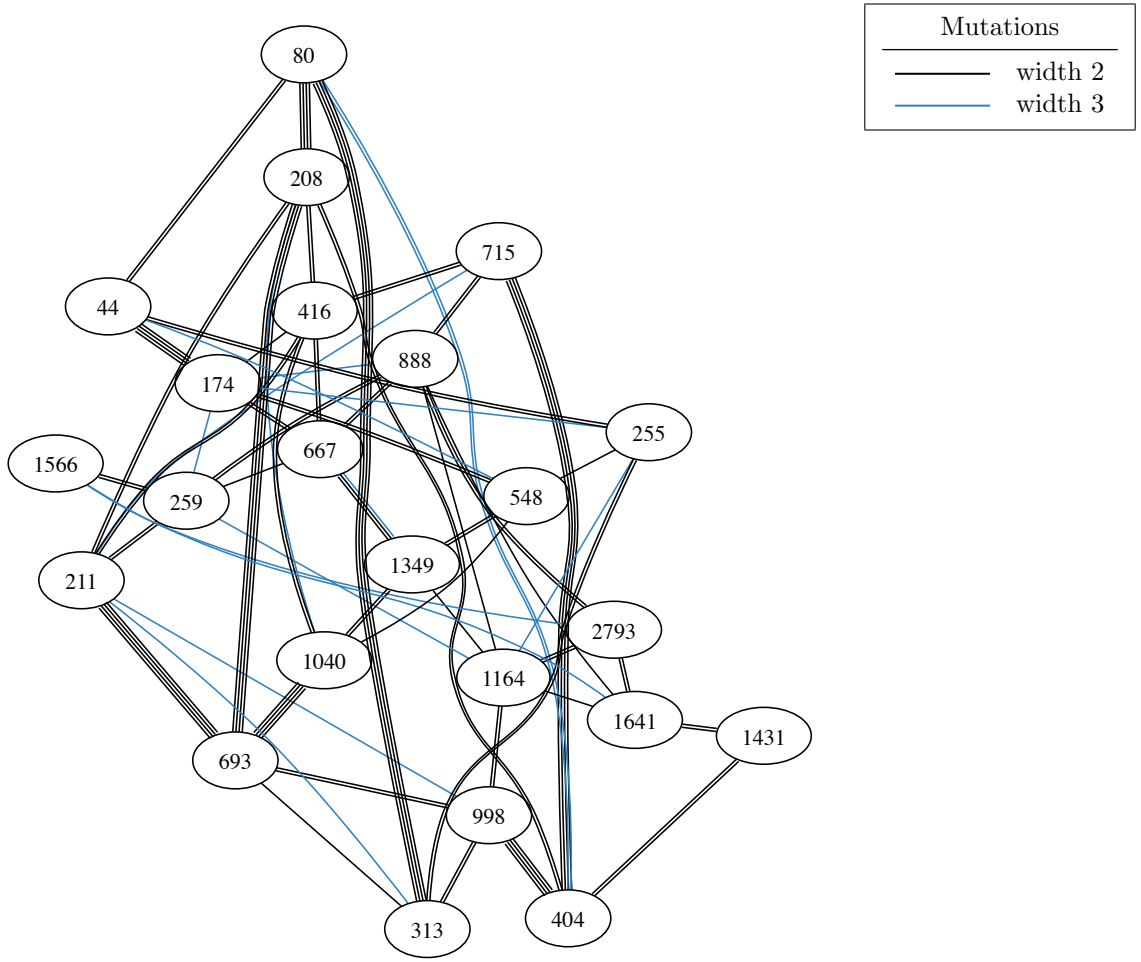

Figure 38b. All mutations between Minkowski polynomials in bucket 38

Bucket 39

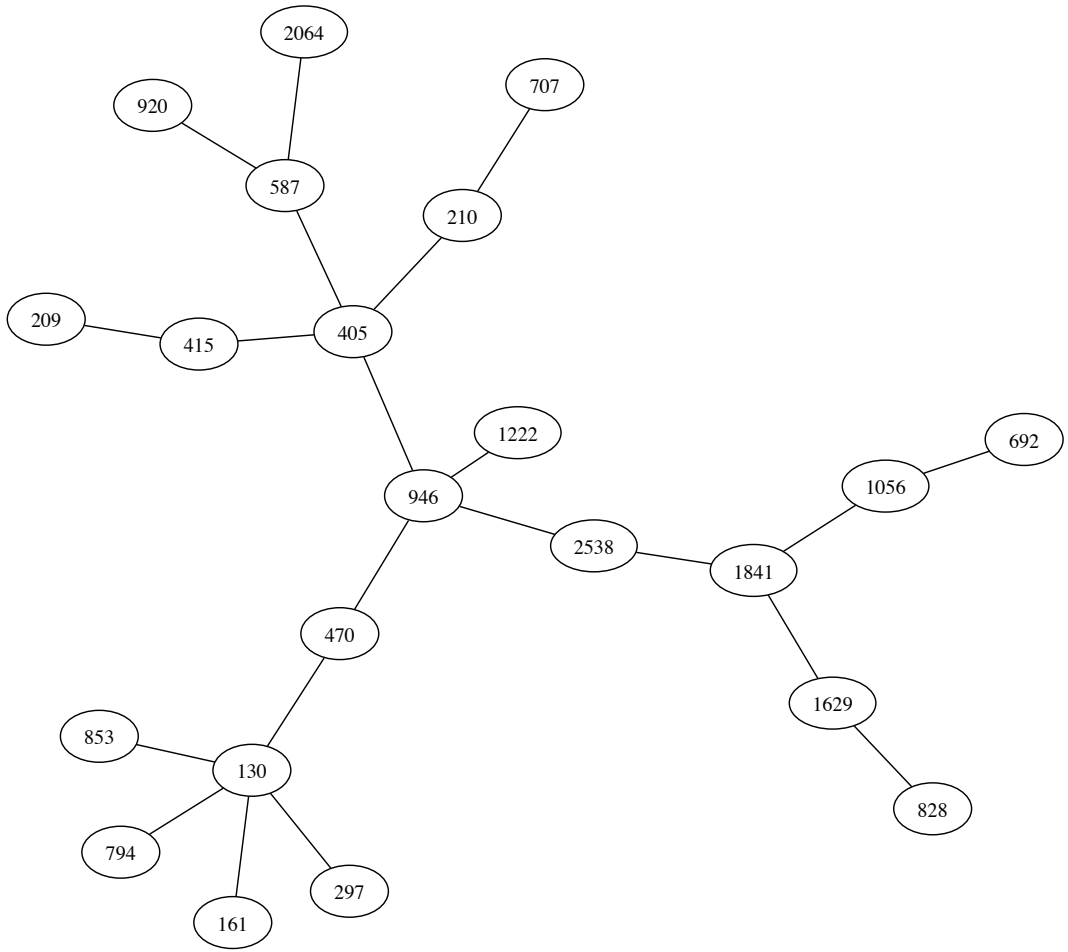

Figure 39a. Selected width-2 mutations between Minkowski polynomials in bucket 39

Table 39. Laurent polynomials and selected mutations for bucket 39.

Node	Laurent polynomial	Mutations from Figure 39a
130	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	161: $\left(\frac{y(xz+1)}{xz}, x, z\right)$ 297: $\left(\frac{x^2z+x+y}{x^2}, \frac{x^2z+x+y}{x^2yz}, \frac{x^3z}{x^2z+x+y}\right)$ 470: $\left(\frac{x^3y^2z^2}{xy^2z+(xyz+1)^2}, \frac{xy^2z+(xyz+1)^2}{x^2y^2z}, y\right)$ 794: $\left(\frac{x^3y^2z+(xy+1)^2}{x^3y^2}, \frac{x^4y^2z}{x^3y^2z+(xy+1)^2}, \frac{x^3y^2z+(xy+1)^2}{x^3yz}\right)$ 853: $\left(\frac{(xy+1)(x^2yz+xy+1)}{x^3y^2}, \frac{(xy+1)(x^2yz+xy+1)}{x^3yz}, \frac{x^4y^2z}{(xy+1)(x^2yz+xy+1)}\right)$
161	$x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}$	130: $\left(y, \frac{xyz}{yz+1}, z\right)$
209	$x+yz+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xyz}$	415: $\left(x, \frac{xyz}{xz+1}, \frac{1}{xz}\right)$
210	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xy}$	405: $\left(y, \frac{xyz}{yz+y+1}, z\right)$ 707: $\left(\frac{xyz+y+1}{xy}, y, \frac{x^2yz}{xyz+y+1}\right)$
297	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	130: $\left(\frac{xyz^2+yz+1}{xyz}, \frac{xyz^2+yz+1}{xy^2z^2}, \frac{x^2yz^2}{xyz^2+yz+1}\right)$
405	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	210: $\left(\frac{y(xz+x+1)}{xz}, x, z\right)$ 415: $\left(x, y, \frac{y+1}{xyz}\right)$ 587: $\left(x, \frac{(yz+1)(xyz+1)}{xy^2z}, \frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$ 946: $\left(\frac{x^3yz^2}{x^2yz^2+xyz+1}, \frac{x^2yz^2+xyz+1}{x^2yz}, y\right)$
415	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	209: $\left(x, y(z+1), \frac{1}{xz}\right)$ 405: $\left(x, y, \frac{y+1}{xyz}\right)$
470	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	130: $\left(\frac{xyz^2+(xyz+1)^2}{xy^2z^2}, z, \frac{x^2y^3z^2}{xyz^2+(xyz+1)^2}\right)$ 946: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$
587	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	405: $\left(x, \frac{(yz+1)(xyz+1)}{xy^2z}, \frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$ 920: $\left(\frac{x+z}{xy}, \frac{x^2}{x+z}, \frac{y(x+z)}{x^2z}\right)$ 2064: $\left(\frac{(x^2yz+1)(x^2yz+xz+1)}{x^4yz^2}, \frac{x^5y^2z^2}{(x^2yz+1)(x^2yz+xz+1)}, \frac{(x^2yz+1)(x^2yz+xz+1)}{x^4y^2z}\right)$

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Table 39 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 39a
692	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1056: $\left(x, \frac{xz}{x+y+1}, y\right)$
707	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	210: $\left(\frac{xyz+y+1}{xy}, y, \frac{x^2yz}{xyz+y+1}\right)$
794	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	130: $\left(\frac{xy^3z^2+(yz+1)^2}{xy^2z^2}, \frac{xy^3z^3}{xy^3z^2+(yz+1)^2}, \frac{x^2y^3z^2}{xy^3z^2+(yz+1)^2}\right)$
828	$x+y+z+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	1629: $\left(x, y, \frac{x}{yz(xy+(x+1)^2)}\right)$
853	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	130: $\left(\frac{(yz+1)(xyz^2+yz+1)}{xy^2z^2}, \frac{xy^3z^3}{(yz+1)(xyz^2+yz+1)}, \frac{x^2y^2z^3}{(yz+1)(xyz^2+yz+1)}\right)$
920	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	587: $\left(\frac{xy^2z+1}{xyz}, \frac{xy^2z+1}{x^2y^2z}, \frac{xy^2z+1}{x^2y^3z^2}\right)$
946	$x+y+z+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	405: $\left(\frac{x^2y^2z+xyz+1}{xy^2z}, z, \frac{x^2y^3z}{x^2y^2z+xyz+1}\right)$ 470: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ 1222: $\left(x, \frac{x^3y^3z^2}{(xyz+1)(x^2yz+1)}, \frac{(xyz+1)(x^2yz+1)}{x^3y^2z}\right)$ 2538: $\left(\frac{x^3y^2}{(xy+z)^2}, \frac{(xy+z)^2}{x^2y}, \frac{(xy+z)^2}{x^3y^2z}\right)$
1056	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	692: $\left(x, z, \frac{y(x+z+1)}{x}\right)$ 1841: $\left(x, \frac{xy}{z(x^2y+xy+1)}, y\right)$
1222	$x+y+z+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	946: $\left(x, \frac{(xyz+1)(x^2yz+1)}{x^3yz^2}, \frac{x^3y^2z^3}{(xyz+1)(x^2yz+1)}\right)$
1629	$x+y+z+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	828: $\left(x, y, \frac{x}{yz(xy+(x+1)^2)}\right)$ 1841: $\left(x, \frac{xy+xz+z}{x^2yz}, \frac{z}{y}\right)$
1841	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{1}{xy}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{z}{x^3y^2}$	1056: $\left(x, z, \frac{xz}{y(x^2z+xz+1)}\right)$ 1629: $\left(x, \frac{xz+x+z}{x^2yz}, \frac{xz+x+z}{x^2y}\right)$ 2538: $\left(\frac{(xy+z)(xyz+(z+1)^2)}{x^2yz}, \frac{x^2y}{(xy+z)(xyz+(z+1)^2)}, \frac{1}{xy}\right)$
2064	$x+y+z+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	587: $\left(\frac{(xy^2z+1)(xy^2z+yz+1)}{x^2y^3z^2}, \frac{x^3y^4z^2}{(xy^2z+1)(xy^2z+yz+1)}, \frac{x^2y^4z^3}{(xy^2z+1)(xy^2z+yz+1)}\right)$

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Table 39 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 39a
2538	$x+y+z+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}+\frac{3z^2}{x^2y}+\frac{4z}{x^2y}+\frac{2}{x^2y}+\frac{z^3}{x^3y^2}+\frac{2z^2}{x^3y^2}+\frac{z}{x^3y^2}$	946: $\left(\frac{(x^2yz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{(x^2yz+1)^2}, \frac{1}{xz}\right)$ 1841: $\left(\frac{(xy+z)(xy+z(xy+1)^2)}{x^3y^2z}, \frac{x^3y^2}{(xy+z)(xy+z(xy+1)^2)}, \frac{1}{xy}\right)$

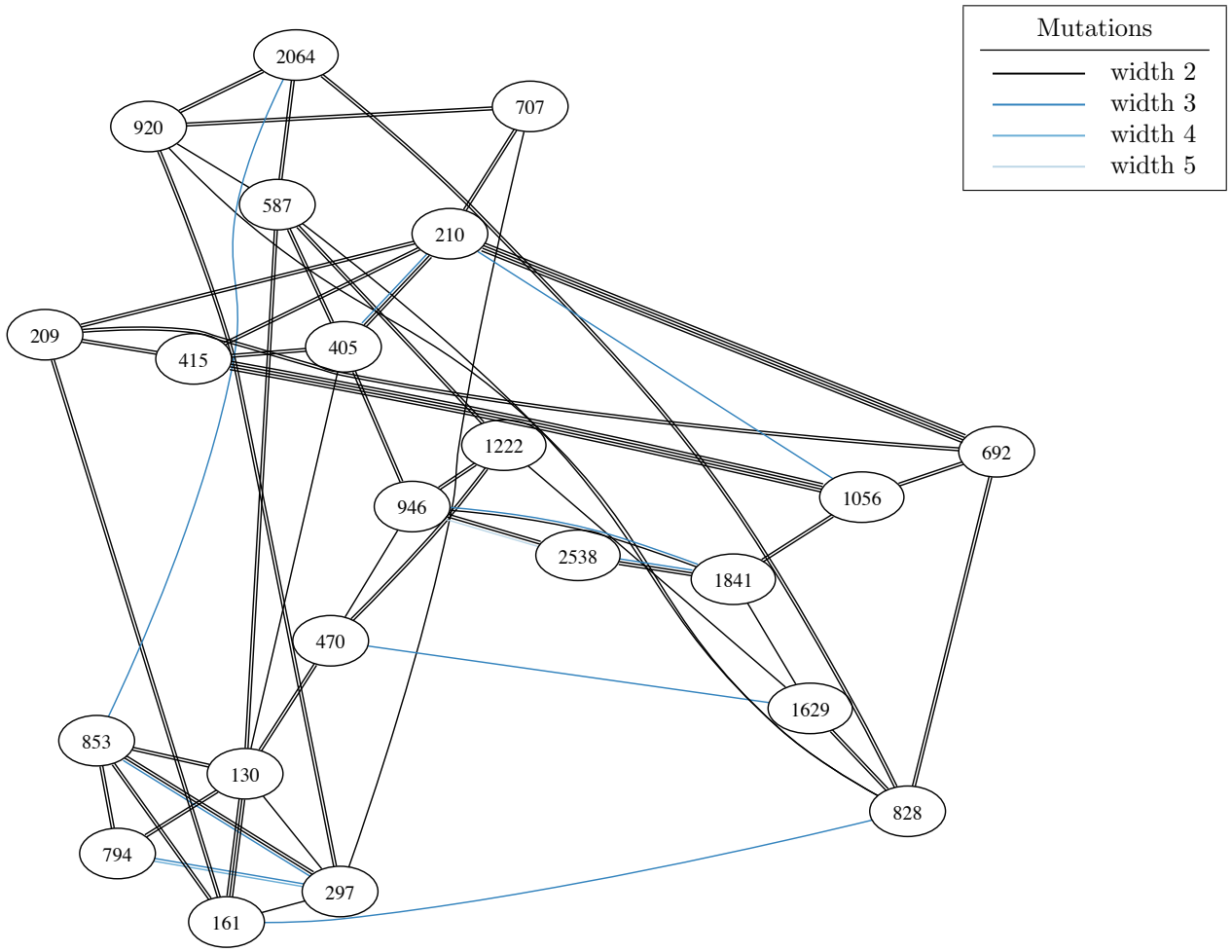
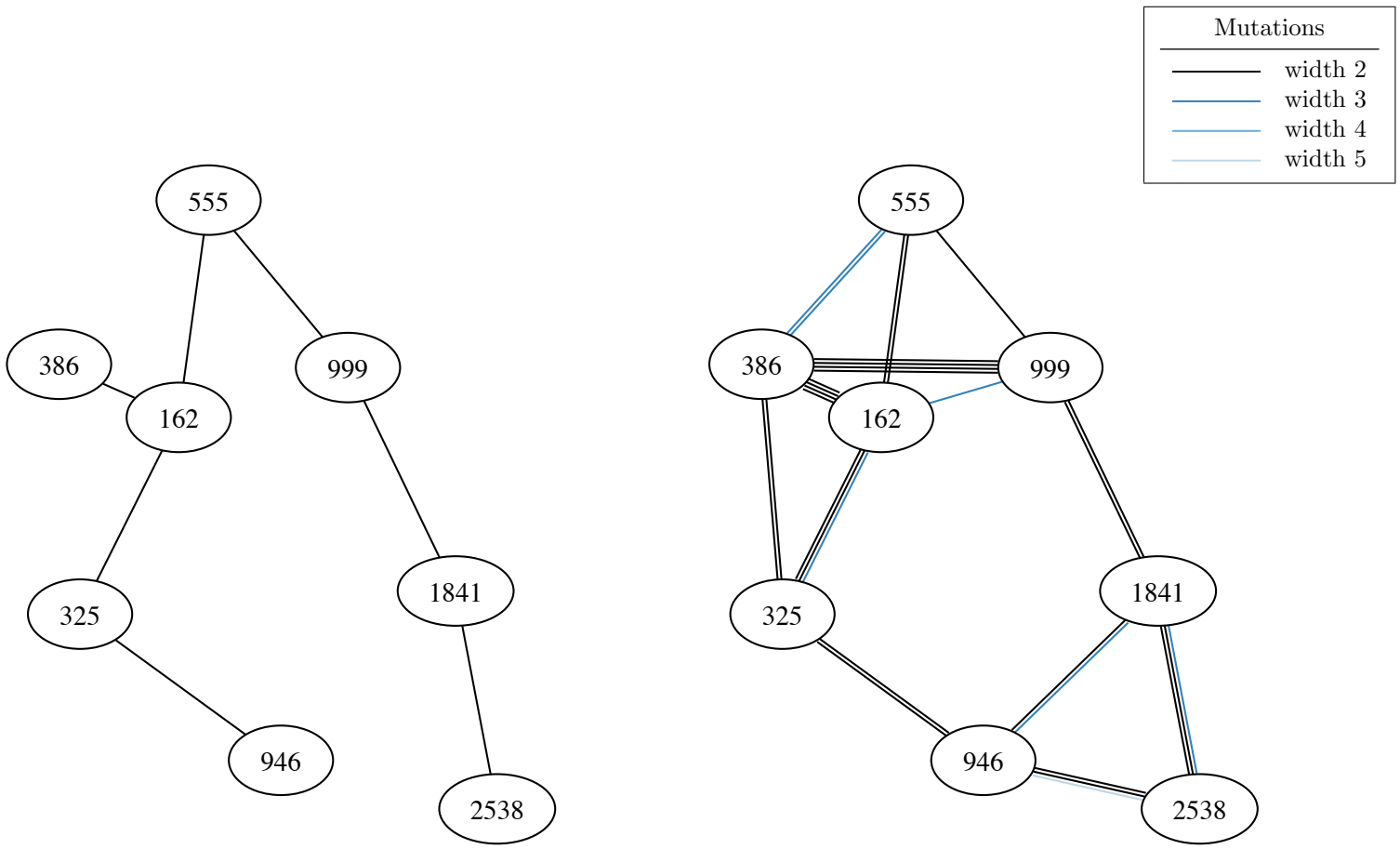


FIGURE 39B. All mutations between Minkowski polynomials in bucket 39

Bucket 40



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 40. Mutations between Minkowski polynomials in bucket 40

Table 40. Laurent polynomials and selected mutations for bucket 40.

Node	Laurent polynomial	Mutations from Figure 40a
162	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	325: $\left(x, \frac{x+z+1}{xyz}, z\right)$ 386: $\left(x, \frac{xyz+1}{xy}, \frac{xy^2z}{xyz+1}\right)$ 555: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
325	$x+y+z+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	162: $\left(x, \frac{x+z+1}{xyz}, z\right)$ 946: $\left(\frac{1+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{1+y(xz+1)^2}, y\right)$
386	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	162: $\left(x, \frac{y(x+1)}{x}, \frac{1}{yz}\right)$
555	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	162: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 999: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$
946	$x+y+z+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	325: $\left(\frac{1+z(xy+1)^2}{x^2yz}, z, \frac{x^3y^2z}{1+z(xy+1)^2}\right)$
999	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3yz^2}$	555: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ 1841: $\left(x, \frac{z(x^2y+(xy+1)^2)}{x^2y^2}, y\right)$
1841	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{1}{xy}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{z}{x^3y^2}$	999: $\left(x, z, \frac{x^2yz^2}{x^2z+(xz+1)^2}\right)$ 2538: $\left(\frac{(xy+z)(xyz+(z+1)^2)}{x^2yz}, \frac{x^2y}{(xy+z)(xyz+(z+1)^2)}, \frac{1}{xy}\right)$
2538	$x+y+z+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{1}{xy}+\frac{3z^2}{x^2y}+\frac{4z}{x^2y}+\frac{2}{x^2y}+\frac{z^3}{x^3y^2}+\frac{2z^2}{x^3y^2}+\frac{z}{x^3y^2}$	1841: $\left(\frac{(xy+z)(xy+z(xy+1)^2)}{x^3y^2z}, \frac{x^3y^2}{(xy+z)(xy+z(xy+1)^2)}, \frac{1}{xy}\right)$

Bucket 41

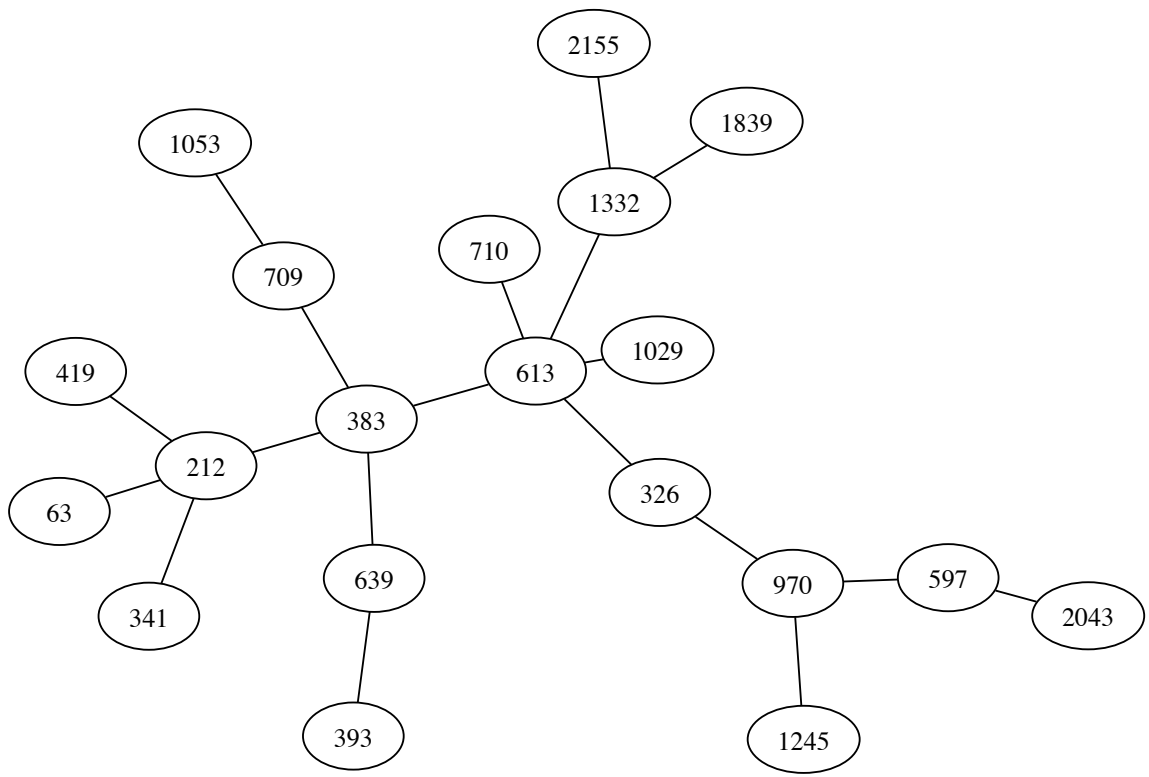


Figure 41a. Selected width-2 mutations between Minkowski polynomials in bucket 41

Table 41. Laurent polynomials and selected mutations for bucket 41.

Node	Laurent polynomial	Mutations from Figure 41a
63	$x+\frac{x}{y}+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	212: $\left(\frac{xy+1}{y},\frac{xy+1}{yz},xy\right)$
212	$xy+x+\frac{x}{z}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}$	63: $\left(\frac{xz}{z+1},\frac{z+1}{x},\frac{x}{y}\right)$ 341: $\left(\frac{xyz}{(z+1)(y+1)},\frac{(z+1)(y+1)}{xy},y\right)$ 383: $\left(\frac{1}{y},\frac{x^2yz}{xyz+xz+1},\frac{xyz+xz+1}{xy}\right)$ 419: $\left(y,\frac{1}{x(y+1)},z\right)$
326	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	613: $\left(\frac{x+yz+y}{xy},\frac{x^2}{x+yz+y},z\right)$ 970: $\left(\frac{(xy+1)^2}{x^2y},\frac{x^3y^2}{(xy+1)^2},\frac{z(xy+1)^2}{x^2y^2}\right)$
341	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	212: $\left(\frac{(z+1)(xy+1)}{yz},z,xy\right)$
383	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{x^2yz}$	212: $\left(\frac{xyz+x+yz}{z},\frac{1}{x},\frac{yz^2}{xyz+x+yz}\right)$ 613: $\left(\frac{xz+y}{xyz},\frac{x^2z}{xz+y},z\right)$ 639: $\left(\frac{xy+xz+1}{x},\frac{x^2y}{xy+xz+1},\frac{x^2z}{xy+xz+1}\right)$ 709: $\left(x,y,\frac{z(xy+1)}{xy}\right)$
393	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	639: $\left(x,\frac{xz+1}{xy},z\right)$
419	$xy+\frac{xy}{z}+x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{1}{x}$	212: $\left(\frac{1}{y(x+1)},x,z\right)$
597	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	970: $\left(x,\frac{y+z}{xyz},\frac{y+z}{xy^2}\right)$ 2043: $\left(\frac{x^3z^2}{x^2z^2+xyz+y},\frac{x^2z^2+xyz+y}{x^2z},y\right)$
613	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	326: $\left(\frac{xy+z+1}{x},\frac{xy+z+1}{x^2y},z\right)$ 383: $\left(\frac{xyz+1}{xz},\frac{xyz+1}{x^2yz},z\right)$ 710: $\left(x,\frac{xy}{x+1},\frac{xz}{x+1}\right)$ 1029: $\left(x,y,\frac{z(x+y)}{x}\right)$ 1332: $\left(\frac{(xz+y+1)(xyz+1)}{x^2yz},\frac{(xz+y+1)(xyz+1)}{x^3yz^2},y\right)$

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Table 41 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 41a
639	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	383: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{x^2z}{xy+xz+1}\right)$ 393: $\left(x, \frac{xz+1}{xy}, z\right)$
709	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	383: $\left(x, y, \frac{xyz}{xy+1}\right)$ 1053: $\left(x, \frac{y}{z+1}, \frac{yz}{z+1}\right)$
710	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	613: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$
970	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	326: $\left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, \frac{x^2y^2z}{(xy+1)^2}\right)$ 597: $\left(x, \frac{y+z}{xyz}, \frac{y+z}{xy^2}\right)$ 1245: $\left(x, \frac{(z+1)(xz+x+z)}{x^2yz}, \frac{(z+1)(xz+x+z)}{x^2y}\right)$
1029	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	613: $\left(x, y, \frac{xz}{x+y}\right)$
1053	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	709: $\left(x, y+z, \frac{z}{y}\right)$
1245	$x+y+z+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	970: $\left(x, \frac{(y+z)(xy+xz+z)}{x^2y^2z}, \frac{z}{y}\right)$
1332	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	613: $\left(\frac{(x+yz+y)(xz+y)}{x^2yz}, z, \frac{x^3z}{(x+yz+y)(xz+y)}\right)$ 1839: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 2155: $\left(x, \frac{y(xz+1)^2}{x^2z^2}, z\right)$
1839	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1332: $\left(x, \frac{xyz}{xz+1}, z\right)$
2043	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	597: $\left(\frac{x^2y^2+xyz+z}{xy^2}, z, \frac{x^2y^3}{x^2y^2+xyz+z}\right)$
2155	$x+y+z+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	1332: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, z\right)$

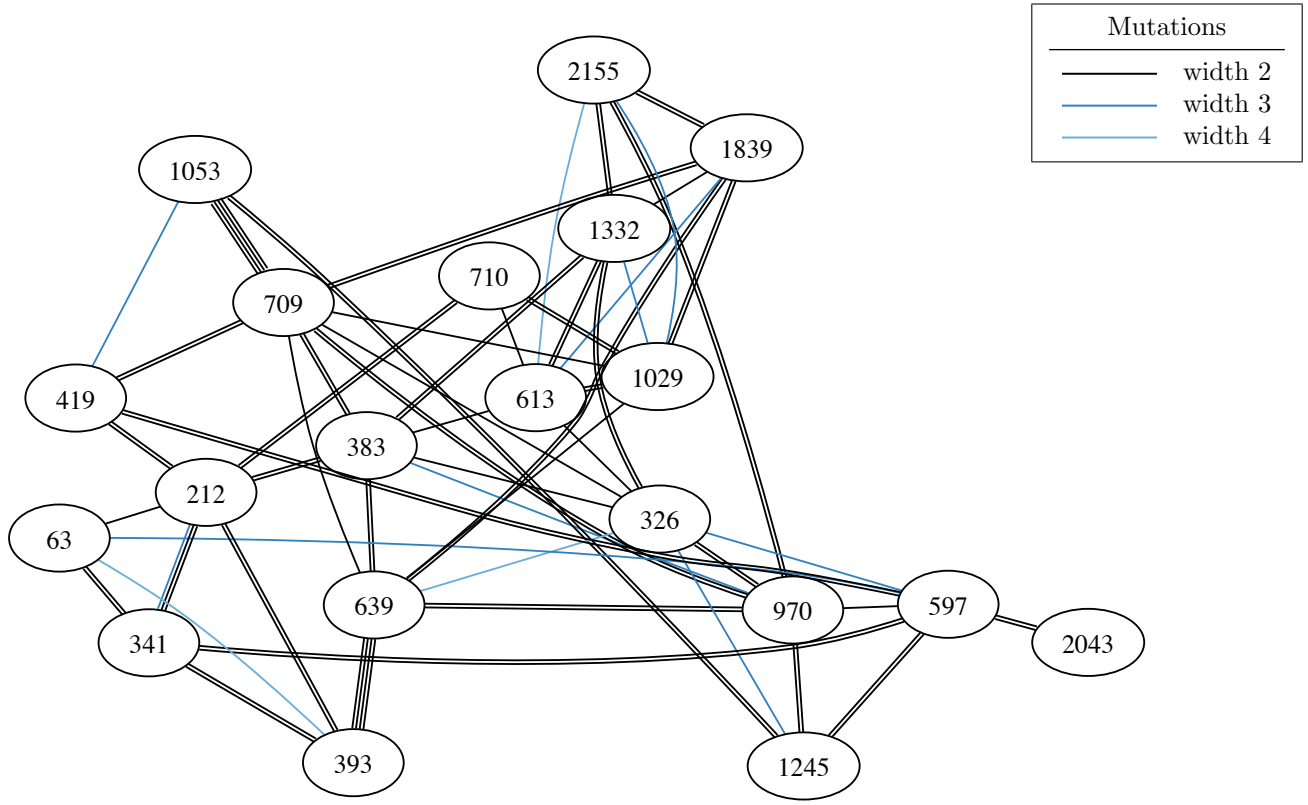

Figure 41b. All mutations between Minkowski polynomials in bucket 41

Bucket 42

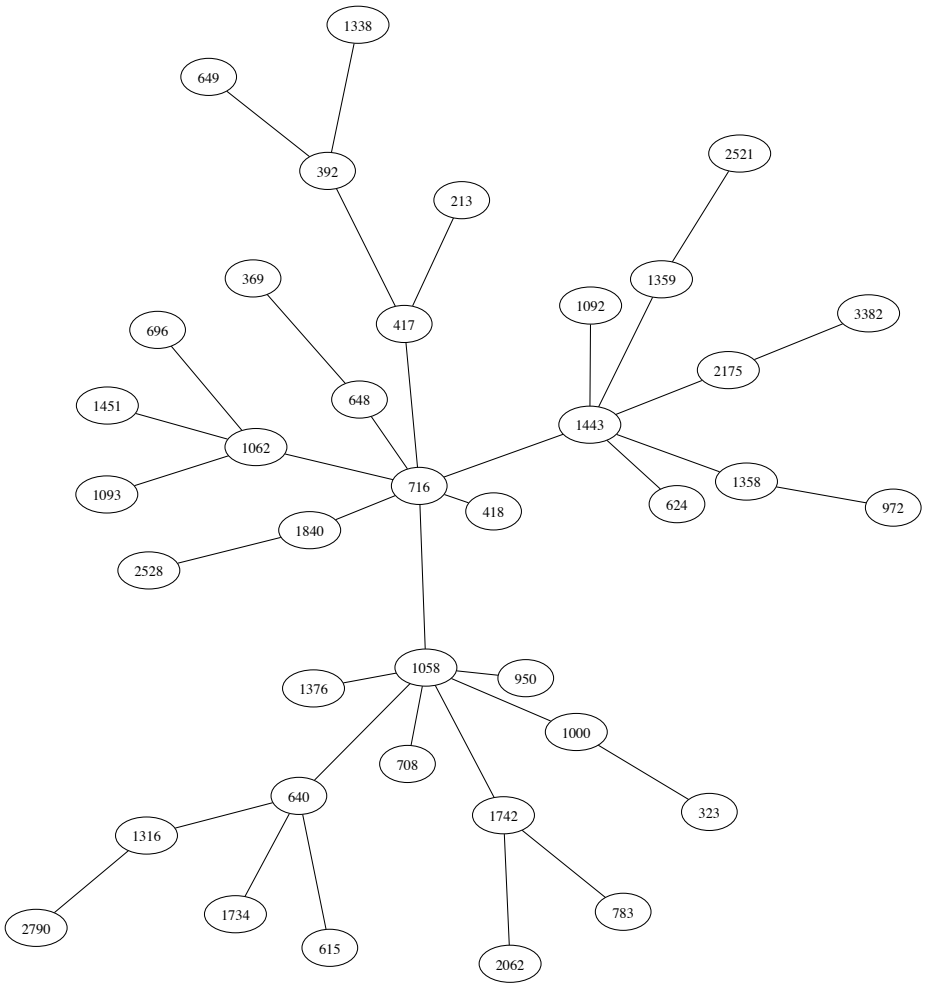

Figure 42a. Selected width-2 mutations between Minkowski polynomials in bucket 42

Table 42. Laurent polynomials and selected mutations for bucket 42.

Node	Laurent polynomial	Mutations from Figure 42a
213	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}$	417: $\left(y, \frac{xz}{z+1}, \frac{x}{z+1}\right)$
323	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z^2}$	1000: $\left(y, \frac{(xyz+1)^2}{x^3y^2z^2}, \frac{(xyz+1)^2}{x^2y^2z}\right)$
369	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	648: $\left(x, \frac{xy}{x+z+1}, \frac{x+z+1}{xyz}\right)$
392	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}$	417: $\left(x, y, \frac{z(y+1)}{y}\right)$ 649: $\left(\frac{xz+y}{xyz}, \frac{xz+y}{xy}, \frac{x^2z}{xz+y}\right)$ 1338: $\left(\frac{(xz+1)(xyz+1)}{x^2yz}, \frac{(xz+1)(xyz+1)}{x^2z}, \frac{x^3yz^2}{(xz+1)(xyz+1)}\right)$
417	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}$	213: $\left(y+z, x, \frac{y}{z}\right)$ 392: $\left(x, y, \frac{yz}{y+1}\right)$ 716: $\left(x, \frac{xyz}{xz+z+1}, z\right)$
418	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	716: $\left(y, \frac{y+z+1}{xy}, \frac{y+z+1}{xyz}\right)$
615	$x+y+z+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	640: $\left(\frac{xz+yz+y}{xyz}, z, \frac{x^2z}{xz+yz+y}\right)$
624	$x+y+z+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1443: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$
640	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	615: $\left(\frac{xyz+y+1}{xy}, \frac{xyz+y+1}{x^2yz}, y\right)$ 1058: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 1316: $\left(\frac{(y+z)(yz+y+z)}{xy^2z}, \frac{(y+z)(yz+y+z)}{xy^2}, y\right)$ 1734: $\left(\frac{x^3z^2}{x^2z^2+y(xz+1)^2}, \frac{x^3yz^2}{x^2z^2+y(xz+1)^2}, \frac{x^2z^2+y(xz+1)^2}{x^2z}\right)$
648	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	369: $\left(x, \frac{xyz+yz+1}{xz}, \frac{1}{yz}\right)$ 716: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xz}\right)$
649	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}$	392: $\left(\frac{yz+1}{y}, \frac{yz+1}{xyz}, \frac{y}{x}\right)$
696	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1062: $\left(x, \frac{x}{y(xz+x+1)}, \frac{1}{xz}\right)$

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Table 42 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 42a
708	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2z}$	1058: $\left(y, \frac{xy}{xyz+y+1}, \frac{x^2yz}{xyz+y+1}\right)$
716	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	417: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$ 418: $\left(\frac{xz+y+z}{xyz}, x, \frac{y}{z}\right)$ 648: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{x}{z(xy+1)}\right)$ 1058: $\left(x, y, \frac{xyz}{xy+x+1}\right)$ 1062: $\left(\frac{yz+1}{y}, \frac{x}{yz+1}, \frac{xyz}{yz+1}\right)$ 1443: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$ 1840: $\left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, \frac{xy+z+1}{x^2yz}\right)$
783	$x+y+z+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	1742: $\left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{x^2y^3z^2}{(xyz+1)^2}\right)$
950	$x+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}+\frac{1}{x^2y}+\frac{z}{x^3y}$	1058: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{xy+1}{x^2yz}\right)$
972	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1358: $\left(x, \frac{y+z}{xyz}, \frac{y+z}{xy^2}\right)$
1000	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	323: $\left(\frac{(xz+y)^2}{x^2yz^2}, x, \frac{x^2z^3}{(xz+y)^2}\right)$ 1058: $\left(\frac{xyz+1}{xz}, \frac{x^2yz}{xyz+1}, z\right)$
1058	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	640: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$ 708: $\left(\frac{xy+xz+y}{x}, x, \frac{xz}{y(xy+xz+y)}\right)$ 716: $\left(x, y, \frac{z(xy+x+1)}{xy}\right)$ 950: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{yz}\right)$ 1000: $\left(\frac{xyz+1}{xz}, \frac{x^2yz}{xyz+1}, z\right)$ 1376: $\left(y, \frac{(xyz+1)(xyz+y+1)}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+1)(xyz+y+1)}\right)$ 1742: $\left(\frac{(xy+1)(xyz+1)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+1)}, z\right)$

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Table 42 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 42a
1062	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{1}{x^2z}$	696: $\left(x, \frac{xz}{y(xz+z+1)}, \frac{1}{xz}\right)$ 716: $\left(y+z, \frac{y+z}{xy}, \frac{xz}{y+z}\right)$ 1093: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$ 1451: $\left(x, y, \frac{1}{z(xy+x+y)}\right)$
1092	$x+yz+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1443: $\left(x, z, \frac{z+1}{xyz}\right)$
1093	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1062: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
1316	$x+y+z+\frac{2z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	640: $\left(\frac{(xz+y)(xz+yz+y)}{x^2yz^2}, z, \frac{y}{x}\right)$ 2790: $\left(\frac{x^3y^2}{z+(xy+z)^2}, \frac{z+(xy+z)^2}{x^2y}, z\right)$
1338	$x+yz+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	392: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{y}{x}, \frac{x^2yz^2}{(yz+1)(xz+1)}\right)$
1358	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	972: $\left(x, \frac{y+z}{xyz}, \frac{y+z}{xy^2}\right)$ 1443: $\left(x, y, \frac{y}{z(xy+1)}\right)$
1359	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1443: $\left(x, y, \frac{1}{z(x+1)}\right)$ 2521: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}, y\right)$
1376	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	1058: $\left(\frac{(xyz+1)(xyz+x+1)}{x^2y^2z}, x, \frac{x^2y^3z^2}{(xyz+1)(xyz+x+1)}\right)$
1443	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	624: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$ 716: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$ 1092: $\left(x, \frac{y+1}{xyz}, y\right)$ 1358: $\left(x, y, \frac{y}{z(xy+1)}\right)$ 1359: $\left(x, y, \frac{1}{z(x+1)}\right)$ 2175: $\left(x, y, \frac{xy}{z(x+1)(xy+1)}\right)$
1451	$x+yz+y+z+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1062: $\left(x, y, \frac{1}{z(xy+x+y)}\right)$

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Table 42 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 42a
1734	$x+yz+y+z+\frac{3y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	640: $\left(\frac{x^3z^2+y(xz+1)^2}{x^2z^2}, \frac{y}{x}, \frac{x^3z^3}{x^3z^2+y(xz+1)^2}\right)$
1742	$x+y+z+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	783: $\left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{x^2y^3z^2}{(xyz+1)^2}\right)$ 1058: $\left(\frac{(xy+1)(xyz+1)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+1)}, z\right)$ 2062: $\left(x, \frac{(xyz+1)^2(x^2yz+1)}{x^4y^3z^2}, \frac{x^4y^4z^3}{(xyz+1)^2(x^2yz+1)}\right)$
1840	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{1}{x^3y^2z}$	716: $\left(\frac{x^2yz+xz+1}{xyz}, \frac{x^2y^2z}{x^2yz+xz+1}, \frac{1}{xz}\right)$ 2528: $\left(x, y, \frac{z(x^2y+(xy+1)^2)}{x^2y^2}\right)$
2062	$x+y+z+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{3}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}+\frac{3}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	1742: $\left(x, \frac{(xyz+1)^2(x^2yz+1)}{x^4y^3z^2}, \frac{x^4y^4z^3}{(xyz+1)^2(x^2yz+1)}\right)$
2175	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	1443: $\left(x, y, \frac{xy}{z(x+1)(xy+1)}\right)$ 3382: $\left(\frac{x^3y^2}{x^2y^2+xyz+z}, \frac{x^2y^2+xyz+z}{x^2y}, z\right)$
2521	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1359: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}\right)$
2528	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^2y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}+\frac{z}{x^4y^3}$	1840: $\left(x, y, \frac{x^2y^2z}{x^2y+(xy+1)^2}\right)$
2790	$x+y+z+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z^2}{x^2y}+\frac{5z}{x^2y}+\frac{2}{x^2y}+\frac{z^3}{x^3y^2}+\frac{3z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}$	1316: $\left(\frac{z+(xy+z)^2}{xy^2}, \frac{x^2y^3}{z+(xy+z)^2}, z\right)$
3382	$x+y+z+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{5z}{x^2y}+\frac{3}{x^2y}+\frac{2z}{x^2y^2}+\frac{3z^2}{x^3y^2}+\frac{5z}{x^3y^2}+\frac{1}{x^3y^2}+\frac{3z^2}{x^4y^3}+\frac{2z}{x^4y^3}+\frac{z^2}{x^5y^4}$	2175: $\left(\frac{x^2y^2+xyz+z}{xy^2}, \frac{x^2y^3}{x^2y^2+xyz+z}, z\right)$

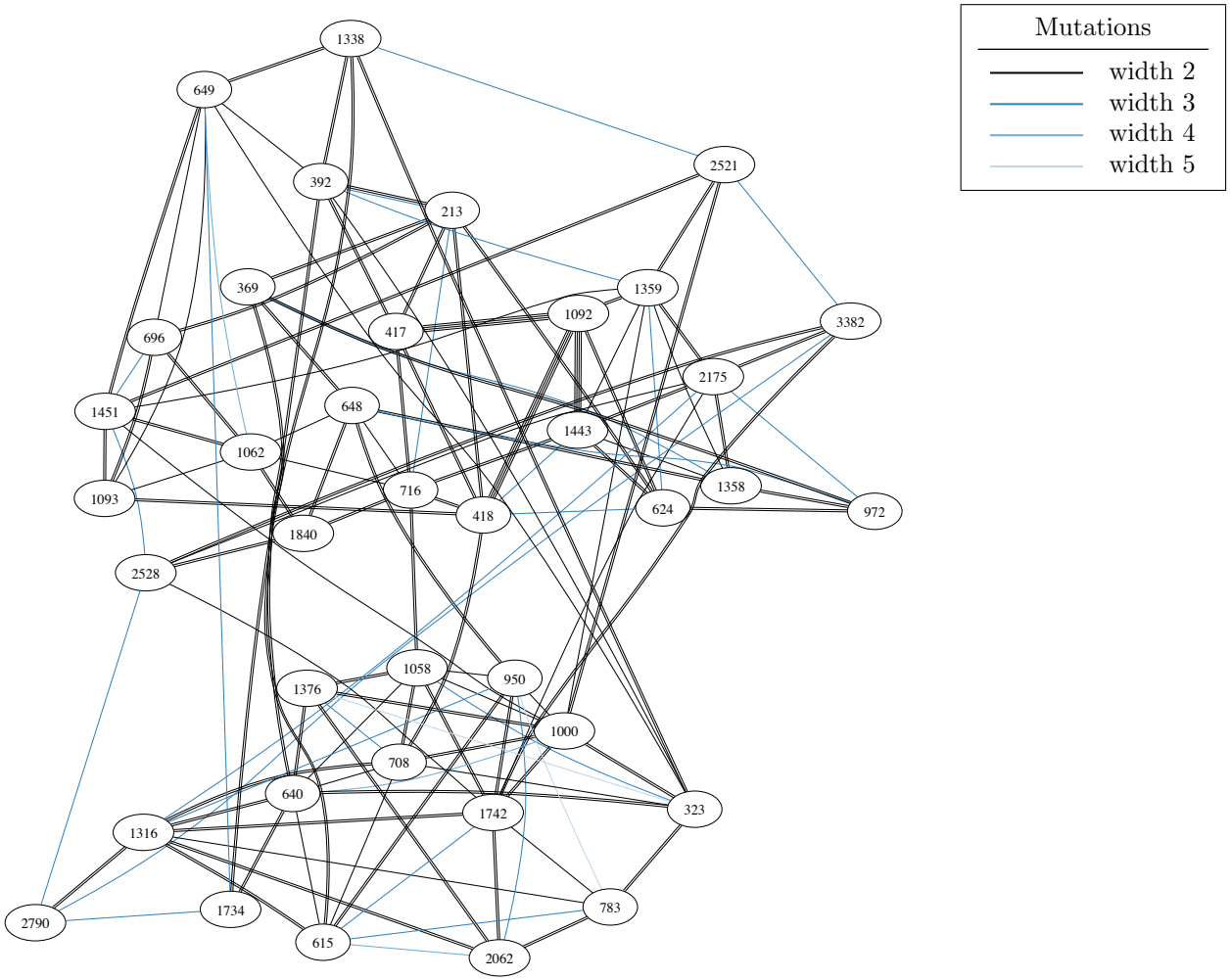

FIGURE 42B. All mutations between Minkowski polynomials in bucket 42

Bucket 43

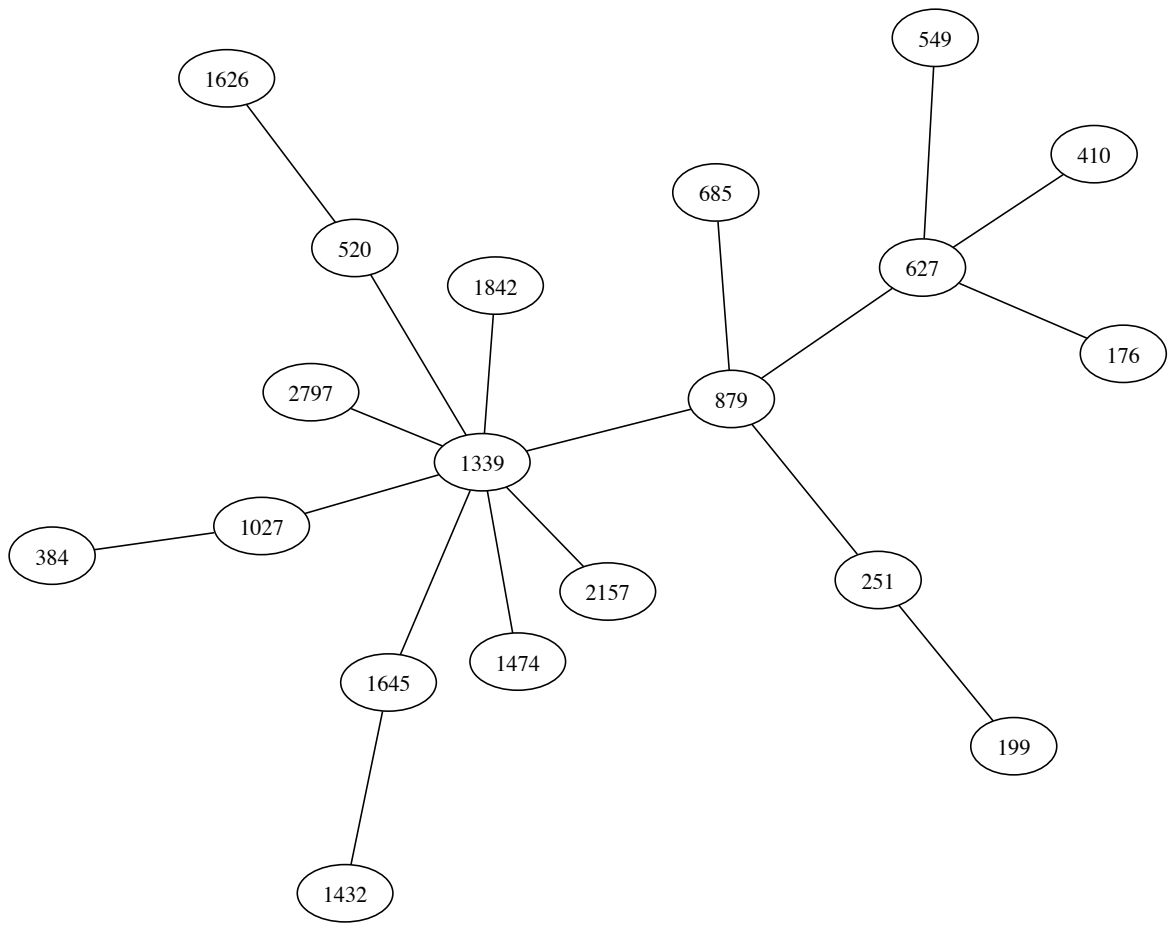

Figure 43a. Selected width-2 mutations between Minkowski polynomials in bucket 43

Table 43. Laurent polynomials and selected mutations for bucket 43.

Node	Laurent polynomial	Mutations from Figure 43a
176	$x+\frac{x}{y}+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{2}{x}+\frac{yz}{x^2}$	627: $\left(\frac{(z+1)^2}{xz},\frac{(z+1)^2}{xyz},yz\right)$
199	$x+\frac{x}{z}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{1}{x}$	251: $\left(\frac{y+z+1}{xy},\frac{xz}{y+z+1},\frac{y+z+1}{xyz}\right)$
251	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	199: $\left(\frac{xy+yz+1}{x},\frac{1}{yz},\frac{x}{z}\right)$ 879: $\left(x,\frac{xyz}{xy+1},y\right)$
384	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z}$	1027: $\left(x,\frac{x^2z}{y(x^2z+xz+1)},z\right)$
410	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	627: $\left(\frac{(z+1)(y+1)}{xyz},\frac{(z+1)(y+1)}{xy},y\right)$
520	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2yz^2}$	1339: $\left(x,\frac{yz+1}{y},\frac{y^2z}{yz+1}\right)$ 1626: $\left(\frac{(xyz+y+z)(x^2yz+1)}{x^3y^2z},\frac{(xyz+y+z)(x^2yz+1)}{x^3yz^2},\frac{x^4y^2z^2}{(xyz+y+z)(x^2yz+1)}\right)$
549	$x+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	627: $\left(x,\frac{(z+1)^2}{xyz},z\right)$
627	$x+yz+y+z+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	176: $\left(\frac{(x+yz)^2}{x^2yz},\frac{x}{y},\frac{yz}{x}\right)$ 410: $\left(\frac{(z+1)(x+y)}{xyz},z,\frac{y}{x}\right)$ 549: $\left(x,\frac{(z+1)^2}{xyz},z\right)$ 879: $\left(x,y,\frac{xyz}{(y+1)(xy+1)}\right)$
685	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	879: $\left(\frac{x^2yz}{xyz+y+1},\frac{xyz+y+1}{xy},y\right)$
879	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	251: $\left(x,z,\frac{y(xz+1)}{xz}\right)$ 627: $\left(x,y,\frac{z(y+1)(xy+1)}{xy}\right)$ 685: $\left(\frac{xyz+z+1}{yz},z,\frac{xy^2z}{xyz+z+1}\right)$ 1339: $\left(\frac{xy+1}{x},\frac{xyz}{xy+1},\frac{x^2y}{xy+1}\right)$
1027	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	384: $\left(x,\frac{x^2z}{y(x^2z+xz+1)},z\right)$ 1339: $\left(\frac{(yz+1)(xyz+1)}{xy^2z},\frac{1}{x},\frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$

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Table 43 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 43a
1339	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	520: $\left(x, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$ 879: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{y(xz+1)}{xz}\right)$ 1027: $\left(\frac{1}{y}, \frac{(xz+1)(xz+y)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+y)}\right)$ 1474: $\left(\frac{x^2yz}{xyz+1}, \frac{xyz+1}{xz}, z\right)$ 1645: $\left(\frac{x^3z^2+xyz+y}{x^3yz^2}, \frac{x^4z^2}{x^3z^2+xyz+y}, \frac{x^3z^2+xyz+y}{x^3z}\right)$ 1842: $\left(\frac{xy^2z}{xyz+1}, x, \frac{xyz+1}{xy}\right)$ 2157: $\left(\frac{x^2y^3z^2}{(xyz+1)^2}, x, \frac{(xyz+1)^2}{x^2y^2z}\right)$ 2797: $\left(\frac{x^2z}{xy+xz+1}, \frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}\right)$
1432	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	1645: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
1474	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	1339: $\left(\frac{xyz+1}{yz}, \frac{xy^2z}{xyz+1}, z\right)$
1626	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	520: $\left(\frac{(xyz+x+y)(xyz^2+1)}{x^2y^2z^2}, \frac{x^2y^3z^3}{(xyz+x+y)(xyz^2+1)}, \frac{x^3y^2z^3}{(xyz+x+y)(xyz^2+1)}\right)$
1645	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{2y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	1339: $\left(\frac{xy^3z^2+yz+1}{xy^2z^2}, \frac{xy^3z^2+yz+1}{x^2y^3z^2}, \frac{xy^3z^3}{xy^3z^2+yz+1}\right)$ 1432: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
1842	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	1339: $\left(y, \frac{xyz+1}{yz}, \frac{xyz^2}{xyz+1}\right)$
2157	$x+y+z+\frac{1}{y}+\frac{1}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{6}{x^2y^2z}+\frac{1}{x^2y^3z^2}+\frac{1}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^4y^4z^3}$	1339: $\left(y, \frac{(xyz+1)^2}{xy^2z^2}, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$
2797	$x+y+z+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1339: $\left(\frac{xy+yz+1}{y}, \frac{y^2z}{xy+yz+1}, \frac{xy^2}{xy+yz+1}\right)$

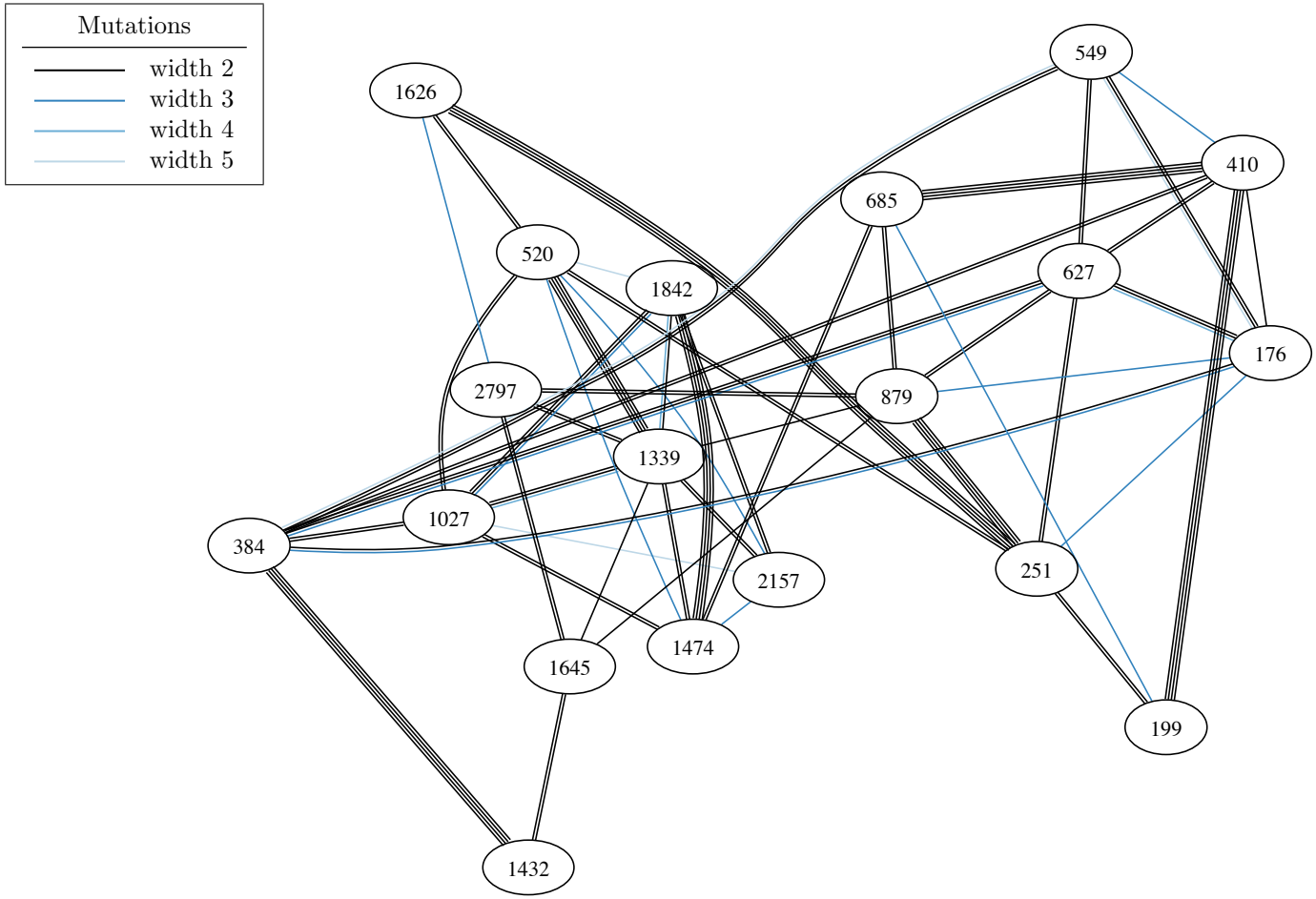

FIGURE 43B. All mutations between Minkowski polynomials in bucket 43

Bucket 44

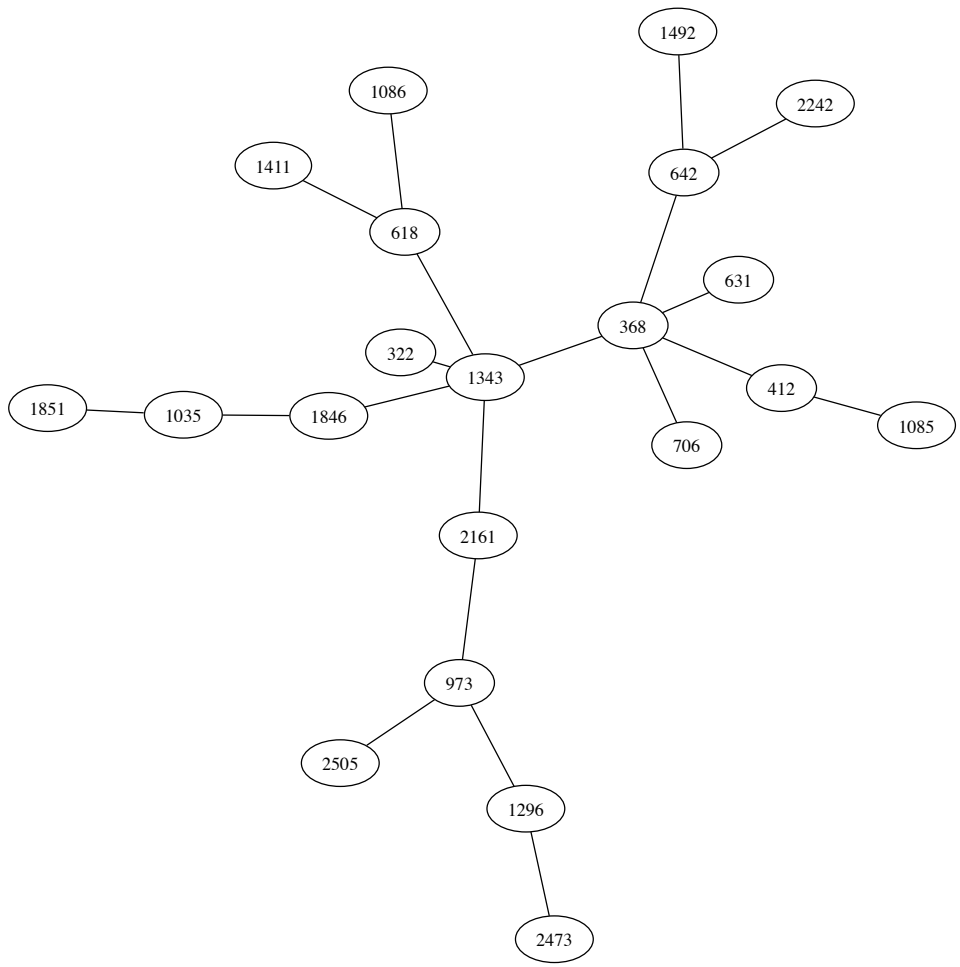

Figure 44a. Selected width-2 mutations between Minkowski polynomials in bucket 44

Table 44. Laurent polynomials and selected mutations for bucket 44.

Node	Laurent polynomial	Mutations from Figure 44a
322	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z^2}$	1343: $\left(\frac{(xz+1)(xyz+xz+1)}{x^2yz}, \frac{(xz+1)(xyz+xz+1)}{x^3z^2}, y\right)$
368	$xy+x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}$	412: $\left(\frac{1}{x}, y, \frac{z(y+1)}{y}\right)$ 631: $\left(\frac{yz+(y+1)^2}{xyz}, y, z\right)$ 642: $\left(y, \frac{xyz}{y^2z+yz+1}, z\right)$ 706: $\left(\frac{xz+y}{xy}, y, \frac{x^2z}{xz+y}\right)$ 1343: $\left(\frac{(xz+1)(xz+y)}{x^2z}, \frac{x^2yz}{(xz+1)(xz+y)}, \frac{x^3z^2}{(xz+1)(xz+y)}\right)$
412	$\frac{xy}{z}+x+\frac{x}{z}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}$	368: $\left(\frac{1}{x}, y, \frac{yz}{y+1}\right)$ 1085: $\left(\frac{z+1}{xz}, \frac{z+1}{x}, \frac{z+1}{xyz}\right)$
618	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{x^2y}$	1086: $\left(x, \frac{y(x+1)}{x}, \frac{y}{z}\right)$ 1343: $\left(\frac{(xz+y)(xyz+xz+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y)(xyz+xz+1)}, y\right)$ 1411: $\left(x, \frac{y(x+1)^2}{x^2}, z\right)$
631	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{3y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xyz}$	368: $\left(\frac{yz+(y+1)^2}{xyz}, y, z\right)$
642	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	368: $\left(\frac{y(x^2z+xz+1)}{xz}, x, z\right)$ 1492: $\left(\frac{x^2z}{xz+y}, \frac{1}{y}, \frac{xz+y}{x}\right)$ 2242: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
706	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{1}{xz}$	368: $\left(\frac{xz+1}{x}, y, \frac{x^2yz}{xz+1}\right)$
973	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2yz}+\frac{1}{x^2yz^2}$	1296: $\left(\frac{xyz+y+1}{xy}, \frac{x^2yz}{xyz+y+1}, y\right)$ 2161: $\left(\frac{x^4yz^2}{x^3yz^2+(xz+1)^2}, \frac{x^3yz^2+(xz+1)^2}{x^3z^2}, \frac{x^3yz^2+(xz+1)^2}{x^3yz}\right)$ 2505: $\left(\frac{(xyz+1)(xyz+y+1)}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+1)(xyz+y+1)}, y\right)$
1035	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1846: $\left(\frac{x^2yz}{xyz+1}, \frac{xyz+1}{x}, y\right)$ 1851: $\left(x, \frac{y(x+1)^2}{x^2}, \frac{z(x+1)^2}{x^2}\right)$

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Table 44 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 44a
1085	$x+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	412: $\left(\frac{x+y}{xy}, \frac{y}{x}, \frac{z}{y}\right)$
1086	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}$	618: $\left(x, \frac{xy}{x+1}, \frac{xy}{z(x+1)}\right)$
1296	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	973: $\left(\frac{xyz+z+1}{xz}, z, \frac{x^2yz}{xyz+z+1}\right)$ 2473: $\left(x, \frac{x^2yz}{x^2y+xy+1}, y\right)$
1343	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	322: $\left(\frac{(xz+y)(xz^2+xz+y)}{x^2yz^2}, z, \frac{x^3z^3}{(xz+y)(xz^2+xz+y)}\right)$ 368: $\left(\frac{(y+z)(xz+1)}{xz}, xy, \frac{x^2z^2}{(y+z)(xz+1)}\right)$ 618: $\left(\frac{(xy+z)(xyz+xy+1)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z)(xyz+xy+1)}\right)$ 1846: $\left(x, \frac{xyz+1}{xz}, yz\right)$ 2161: $\left(x, \frac{(xz+1)^2}{x^2yz}, z\right)$
1411	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	618: $\left(x, \frac{x^2y}{(x+1)^2}, z\right)$
1492	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	642: $\left(\frac{xyz+1}{yz}, \frac{1}{y}, \frac{xyz^2}{xyz+1}\right)$
1846	$x+yz+y+z+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1035: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{z(xy+1)}\right)$ 1343: $\left(x, \frac{xyz}{xz+1}, \frac{xz+1}{xy}\right)$
1851	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{3z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{z}{x^2y}+\frac{z}{x^3}$	1035: $\left(x, \frac{x^2y}{(x+1)^2}, \frac{x^2z}{(x+1)^2}\right)$
2161	$x+y+z+\frac{z}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	973: $\left(\frac{x^3yz^2+(xz+1)^2}{x^2yz^2}, \frac{x^3y^2z^2}{x^3yz^2+(xz+1)^2}, \frac{x^3yz^3}{x^3yz^2+(xz+1)^2}\right)$ 1343: $\left(x, \frac{(xz+1)^2}{x^2yz}, z\right)$
2242	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	642: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$
2473	$x+y+z+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3yz}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^2z}$	1296: $\left(x, z, \frac{y(x^2z+xz+1)}{x^2z}\right)$

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Table 44 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 44a
2505	$x+y+z+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	973: $\left(\frac{(xyz+1)(xyz+z+1)}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+1)(xyz+z+1)}\right)$

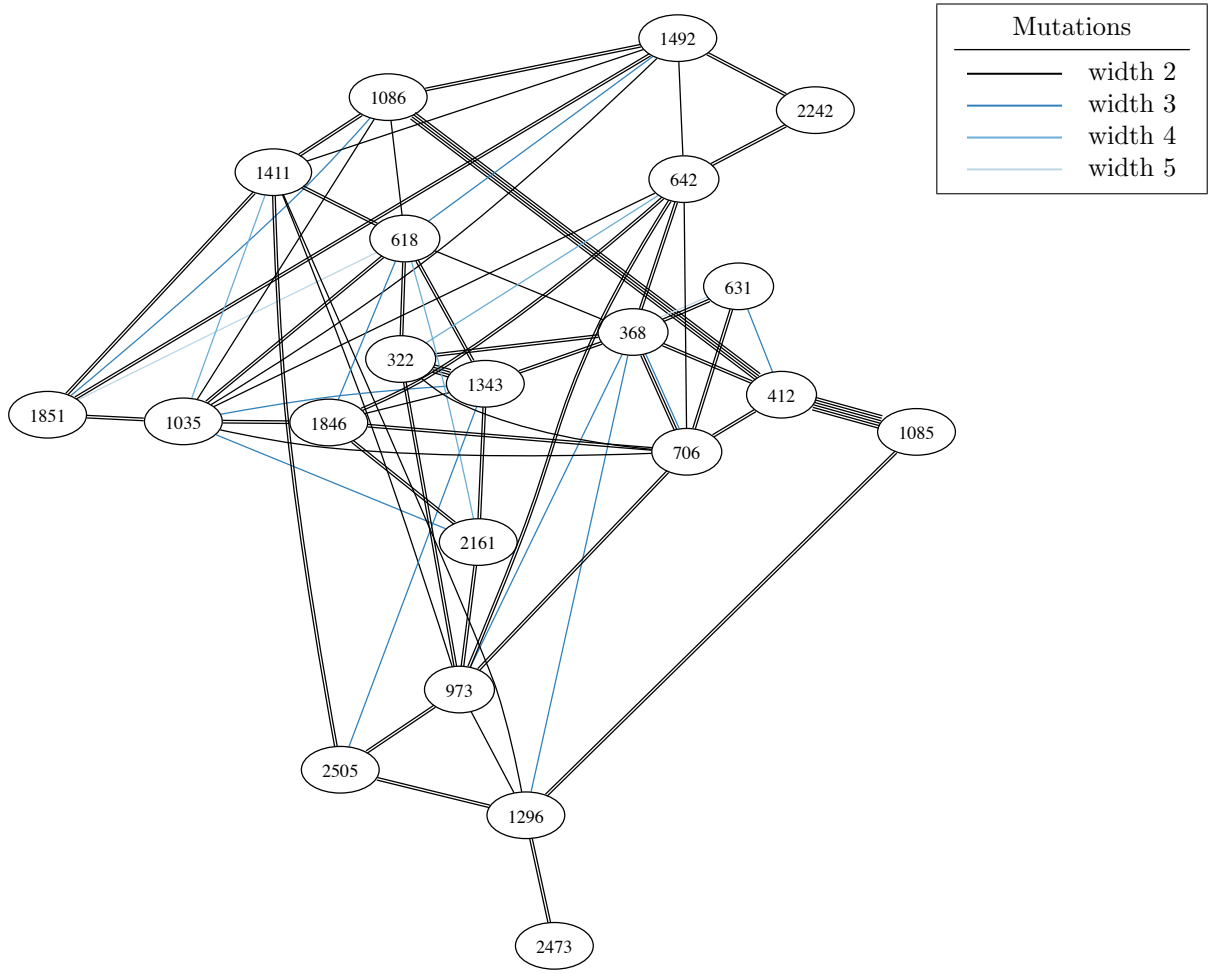


FIGURE 44B. All mutations between Minkowski polynomials in bucket 44

Bucket 45

(a) A spanning tree consisting of width-2 mutations

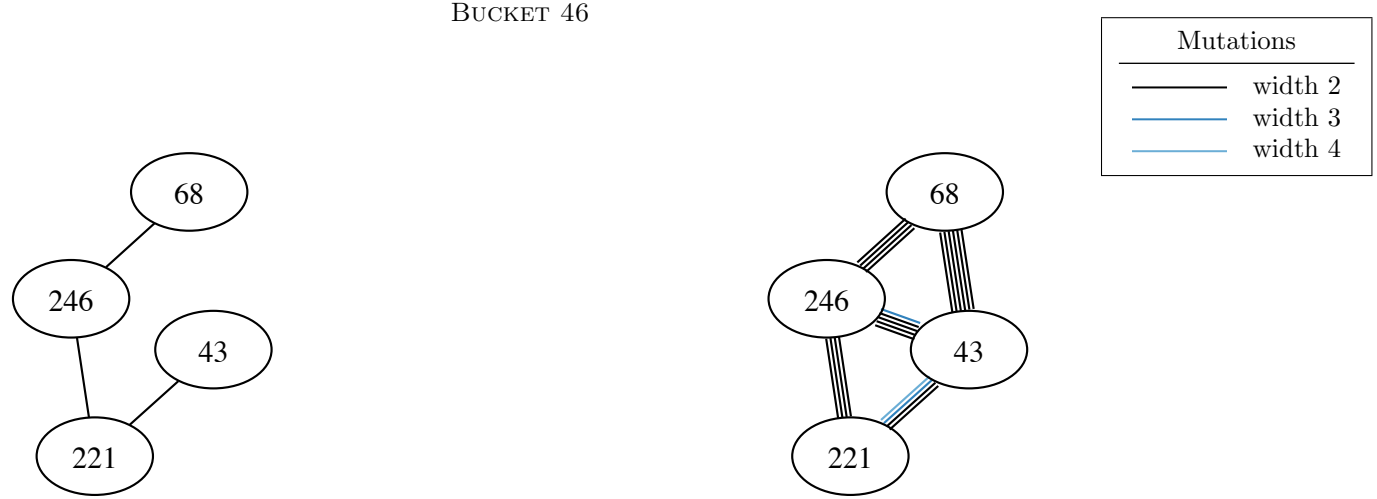
(b) All mutations are of width 2

Figure 45. Mutations between Minkowski polynomials in bucket 45

Table 45. Laurent polynomials and selected mutations for bucket 45.

Node	Laurent polynomial	Mutations from Figure 45a
18	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{x^2z}$	31: $\left(\frac{y+z}{yz}, x, \frac{z^2}{y+z}\right)$
31	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}$	18: $\left(y, \frac{xz+1}{x^2z}, \frac{xz+1}{x}\right)$ 156: $\left(\frac{x^2yz+xy+1}{x}, \frac{x^3yz}{x^2yz+xy+1}, \frac{x^2yz+xy+1}{x^2y}\right)$
122	$x+y+z+\frac{3}{x}+\frac{z}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3yz}$	156: $\left(x, \frac{x^2yz+1}{x^2y}, \frac{1}{x^3yz}\right)$
156	$xyz+x+y+z+\frac{3}{x}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3yz}$	31: $\left(\frac{xyz+x+z}{xz}, \frac{x^2}{xyz+x+z}, \frac{xyz^2}{xyz+x+z}\right)$ 122: $\left(x, \frac{xz+1}{x^3yz}, \frac{y}{xz+1}\right)$

Bucket 46



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 46. Mutations between Minkowski polynomials in bucket 46

Table 46. Laurent polynomials and selected mutations for bucket 46.

Node	Laurent polynomial	Mutations from Figure 46a
43	$x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{x^2z}$	221: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^2yz+(xz+1)^2}{x^3yz}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$
68	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xyz}$	246: $\left(\frac{x^2z}{xy+xz+1}, \frac{x^2y}{xy+xz+1}, \frac{xy+xz+1}{x}\right)$
221	$x+y+z+\frac{3}{x}+\frac{z}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	43: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$ 246: $\left(x, \frac{z(xy+1)}{xy}, y\right)$
246	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3yz}$	68: $\left(\frac{xz+yz+1}{z}, \frac{yz^2}{xz+yz+1}, \frac{xz^2}{xz+yz+1}\right)$ 221: $\left(x, z, \frac{xyz}{xz+1}\right)$

Bucket 47

(a) A spanning tree consisting of width-2 mutations

(b) All mutations are of width 2

Figure 47. Mutations between Minkowski polynomials in bucket 47

Table 47. Laurent polynomials and selected mutations for bucket 47.

Node	Laurent polynomial	Mutations from Figure 47a
66	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{x^2z}$	310: $\left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$ 311: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, \frac{xz+y(xz+1)^2}{x^2z}, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$
310	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2y^2z}$	66: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$ 534: $\left(\frac{x^3y^2}{xyz+(xy+1)^2}, \frac{xyz+(xy+1)^2}{x^2y}, z\right)$
311	$x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	66: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{y}{x}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$
534	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2}$	310: $\left(\frac{xyz+(xy+1)^2}{xy^2}, \frac{x^2y^3}{xyz+(xy+1)^2}, z\right)$

Bucket 48

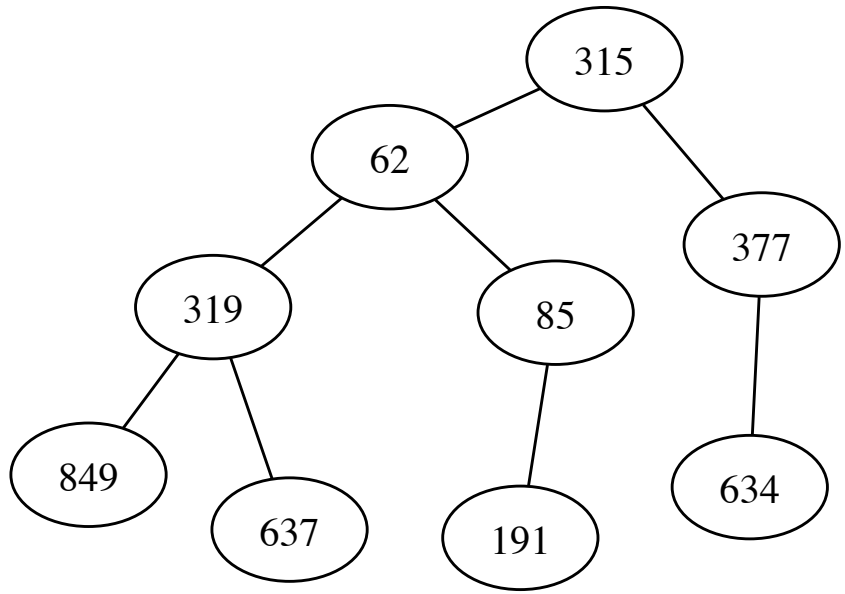


Figure 48a. Selected width-2 mutations between Minkowski polynomials in bucket 48

Table 48. Laurent polynomials and selected mutations for bucket 48.

Node	Laurent polynomial	Mutations from Figure 48a
62	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	85: $\left(\frac{xy+1}{y}, \frac{1}{z}, xy\right)$ 315: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{xyz+(y+1)^2}{x^2yz}, y\right)$ 319: $\left(x, \frac{xy}{xyz+x+yz}, \frac{xy^2z}{xyz+x+yz}\right)$
85	$xy+x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}$	62: $\left(\frac{xz}{z+1}, \frac{z+1}{x}, \frac{1}{y}\right)$ 191: $\left(\frac{xz+1}{x}, y, \frac{xz+1}{x^2z}\right)$
191	$x+yz+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{x^2z}$	85: $\left(\frac{x+z}{xz}, y, \frac{x^2}{x+z}\right)$
315	$x+y+z+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	62: $\left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{x^2z}{xz+y(z+1)^2}\right)$ 377: $\left(x, y, \frac{z(y+1)}{y}\right)$
319	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2z}+\frac{1}{x^2y}$	62: $\left(x, \frac{xy+xz+z}{x}, \frac{xz}{y(xy+xz+z)}\right)$ 637: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{z(xy+1)}{xy}\right)$ 849: $\left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, \frac{z(xy+1)^2}{x^2y^2}\right)$
377	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	315: $\left(x, y, \frac{yz}{y+1}\right)$ 634: $\left(x, \frac{xz}{y(x^2z+xz+1)}, \frac{1}{xy(x^2z+xz+1)}\right)$
634	$xyz+x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	377: $\left(x, \frac{1}{xy+xz+y}, \frac{y}{x^2z}\right)$
637	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	319: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{xyz}{xy+1}\right)$
849	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3y^2}$	319: $\left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, \frac{x^2y^2z}{(xy+1)^2}\right)$

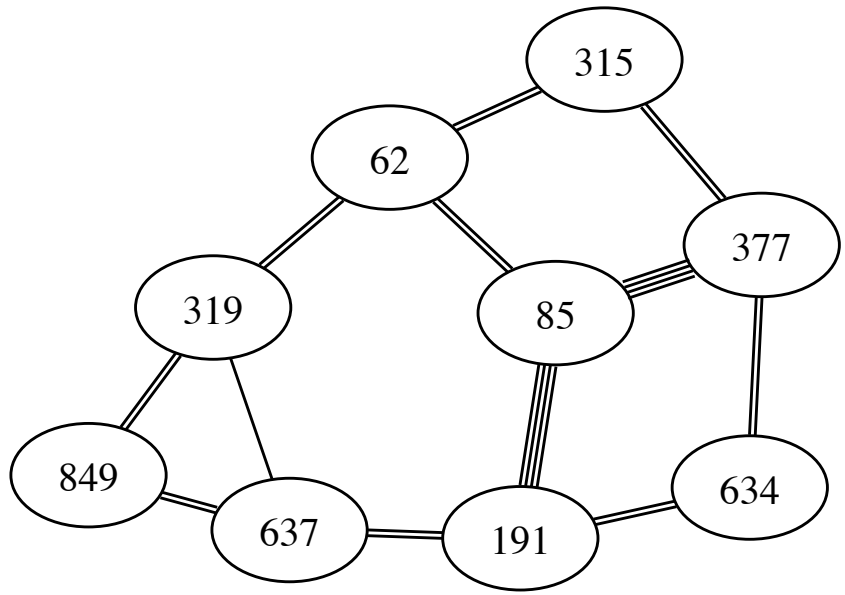


FIGURE 48B. All mutations between Minkowski polynomials in bucket 48 are of width 2

Bucket 49

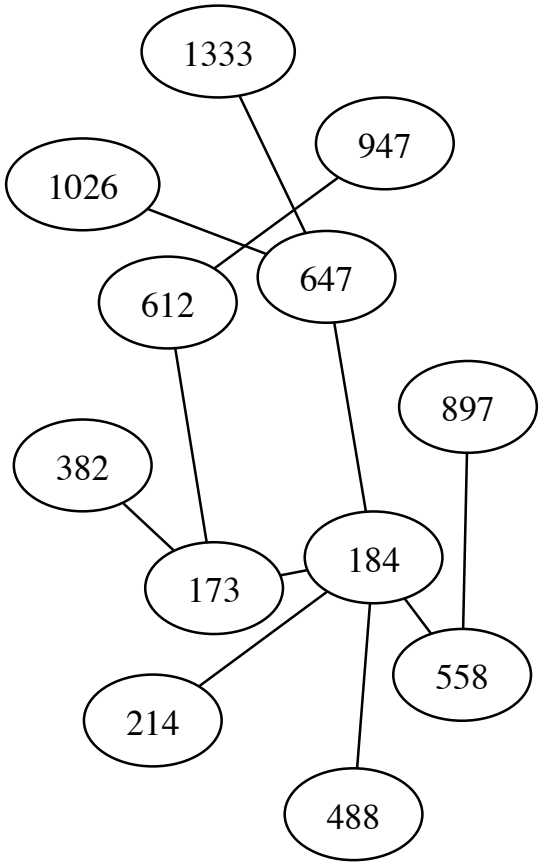


Figure 49a. Selected width-2 mutations between Minkowski polynomials in bucket 49

Table 49. Laurent polynomials and selected mutations for bucket 49.

Node	Laurent polynomial	Mutations from Figure 49a
173	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{1}{x^2z}$	184: $\left(\frac{xz+yz+y}{xyz}, \frac{xz+yz+y}{xy}, \frac{x^2z}{xz+yz+y}\right)$ 382: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 612: $\left(x, \frac{x^2y^2z}{x^2yz+xyz+1}, \frac{x^2yz+xyz+1}{x^2y}\right)$
184	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	173: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2yz}, \frac{y}{x}\right)$ 214: $\left(\frac{yz+1}{z}, x, yz\right)$ 488: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, y\right)$ 558: $\left(\frac{(y+1)(xyz+y+1)}{xy}, \frac{(y+1)(xyz+y+1)}{x^2yz}, y\right)$ 647: $\left(x, \frac{xy}{xz+x+z}, \frac{xyz}{xz+x+z}\right)$
214	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{1}{x}$	184: $\left(y, \frac{xz}{z+1}, \frac{z+1}{x}\right)$
382	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y}{x^2z}+\frac{1}{x^2z}$	173: $\left(x, \frac{xyz}{xz+1}, z\right)$
488	$x+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	184: $\left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$
558	$x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	184: $\left(\frac{(z+1)(xz+yz+y)}{xyz}, z, \frac{x^2z}{(z+1)(xz+yz+y)}\right)$ 897: $\left(x, \frac{xz}{y(x^2z+(xz+1)^2)}, z\right)$
612	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	173: $\left(x, \frac{x^2yz+xyz+1}{x^2z}, \frac{x^2yz^2}{x^2yz+xyz+1}\right)$ 947: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$
647	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	184: $\left(x, \frac{xy+xz+z}{x}, \frac{z}{y}\right)$ 1026: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, z\right)$ 1333: $\left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, z\right)$
897	$x+yz+y+z+\frac{3y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	558: $\left(x, \frac{xz}{y(x^2z+(xz+1)^2)}, z\right)$
947	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2}$	612: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$

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Table 49 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 49a
1026	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$647\colon \left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, z\right)$
1333	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{z}{x^3y^2}+\frac{1}{x^3y^2}$	$647\colon \left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, z\right)$

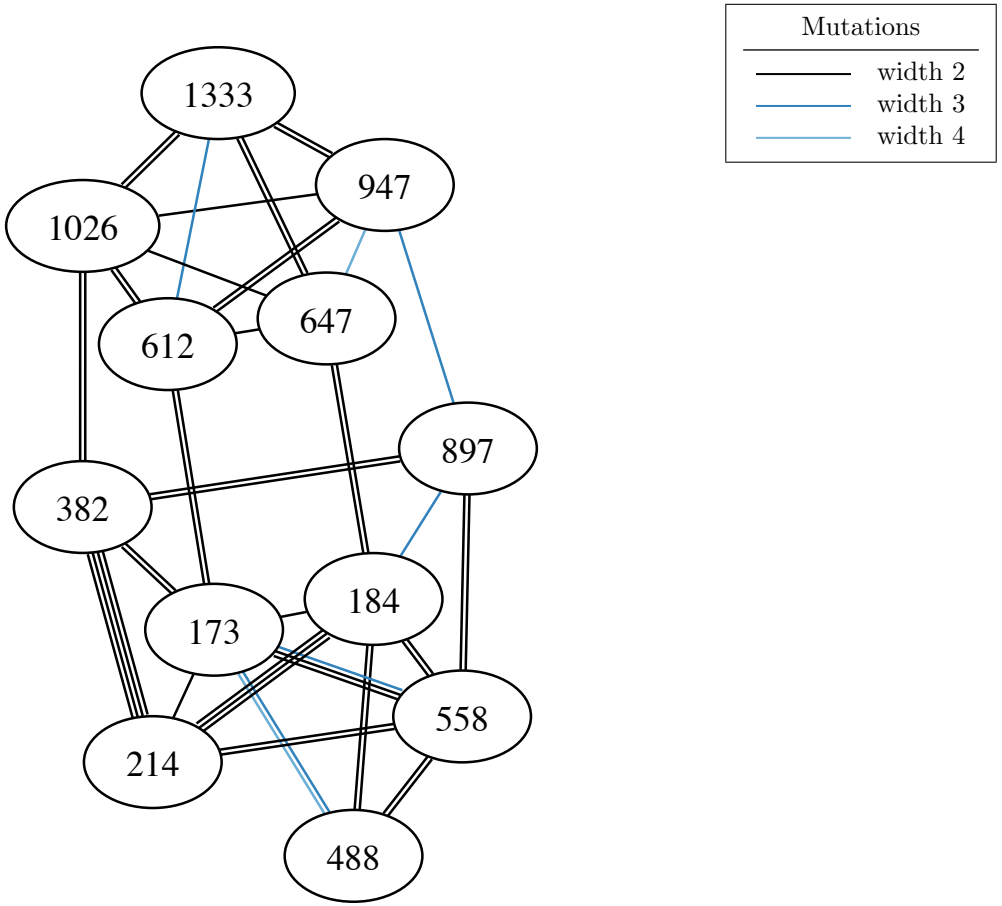


FIGURE 49B. All mutations between Minkowski polynomials in bucket 49

Bucket 50

Bucket 50 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{3}{x} + \frac{2}{xy} + \frac{3}{x^2y} + \frac{1}{x^3y^2} + \frac{1}{x^3y^2z}$$

The Newton polytope of f has reflexive ID 110.

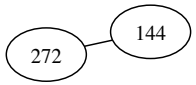
Bucket 51

Bucket 51 consists of a single Laurent polynomial:

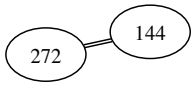
$$f = x + y + z + \frac{3}{x} + \frac{2}{xy} + \frac{3}{x^2y} + \frac{1}{x^2yz} + \frac{1}{x^3y^2}$$

The Newton polytope of f has reflexive ID 111.

Bucket 52



(A) A spanning tree consisting of width-2 mutations



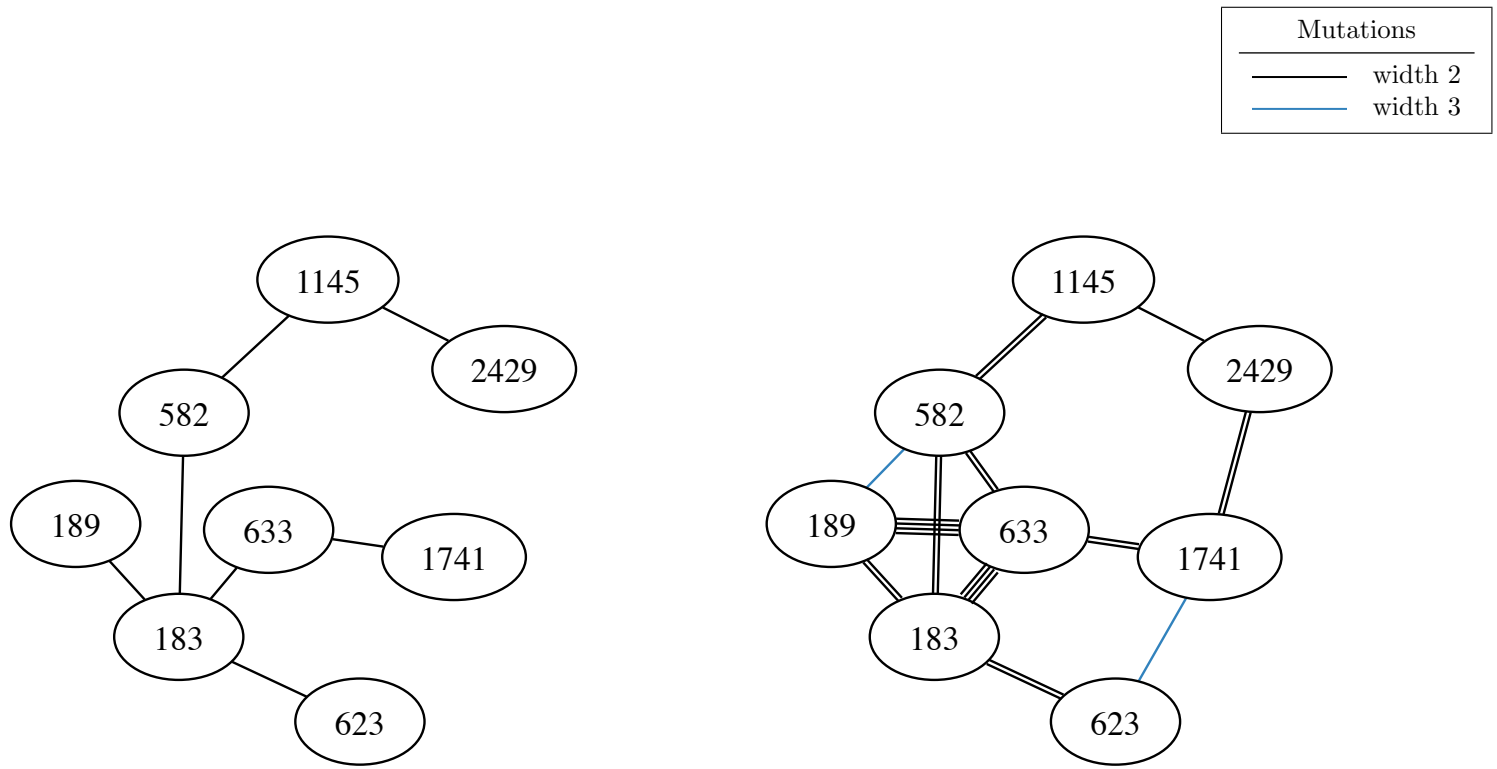
(B) All mutations are of width 2

Figure 52. Mutations between Minkowski polynomials in bucket 52

Table 52. Laurent polynomials and selected mutations for bucket 52.

Node	Laurent polynomial	Mutations from Figure 52a
144	$x + y + z + \frac{1}{y} + \frac{2y}{x} + \frac{2}{x} + \frac{y}{x^2} + \frac{y}{x^2z}$	272: $\left(\frac{x^2yz+(xy+1)^2}{x^2y}, \frac{x^2yz+(xy+1)^2}{x^3y^2}, \frac{1}{x^2yz}\right)$
272	$x + y + z + \frac{3}{x} + \frac{z}{xy} + \frac{2}{xy} + \frac{3}{x^2y} + \frac{1}{x^2yz} + \frac{1}{x^3y^2}$	144: $\left(\frac{y^2+z(x+y)^2}{x^2yz}, \frac{x^3z}{y^2+z(x+y)^2}, \frac{xy^2}{y^2+z(x+y)^2}\right)$

Bucket 53



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 53. Mutations between Minkowski polynomials in bucket 53

Table 53. Laurent polynomials and selected mutations for bucket 53.

Node	Laurent polynomial	Mutations from Figure 53a
183	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	189: $\left(x, \frac{y}{yz+1}, \frac{y^2z}{yz+1}\right)$ 582: $\left(y, \frac{xy^2z+y+1}{x^2y^2z}, \frac{xy}{xy^2z+y+1}\right)$ 623: $\left(\frac{y+z(y+1)^2}{xyz}, \frac{y+z(y+1)^2}{xy}, y\right)$ 633: $\left(y, \frac{xz+1}{x}, \frac{xz+1}{x^2yz}\right)$
189	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2z}$	183: $\left(x, y+z, \frac{z}{y(y+z)}\right)$
582	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	183: $\left(\frac{xyz+x+yz}{xy}, x, \frac{1}{z(xyz+x+yz)}\right)$ 1145: $\left(\frac{x^3y^2}{xz+(xy+1)^2}, \frac{xz+(xy+1)^2}{x^2y}, \frac{1}{x^2yz}\right)$
623	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	183: $\left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{y}{x}\right)$
633	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	183: $\left(\frac{xz+y}{xyz}, x, \frac{xz^2}{xz+y}\right)$ 1741: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{1}{x^2yz}\right)$
1145	$x+y+z+\frac{2z}{y}+\frac{3}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{2z}{x^2y^2}+\frac{1}{x^3y^2}$	582: $\left(\frac{1+xyz(xy+1)^2}{x^2y^3z}, \frac{x^3y^4z}{1+xyz(xy+1)^2}, \frac{xy^2}{1+xyz(xy+1)^2}\right)$ 2429: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, z\right)$
1741	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	633: $\left(\frac{x^2y^2z+xyz+1}{x^2yz}, \frac{x^3y^2z}{x^2y^2z+xyz+1}, \frac{x}{x^2y^2z+xyz+1}\right)$
2429	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{2z}{x^2y^2}+\frac{3z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{z}{x^4y^3}$	1145: $\left(\frac{xy+z}{y}, \frac{xy^2}{xy+z}, z\right)$

Bucket 54

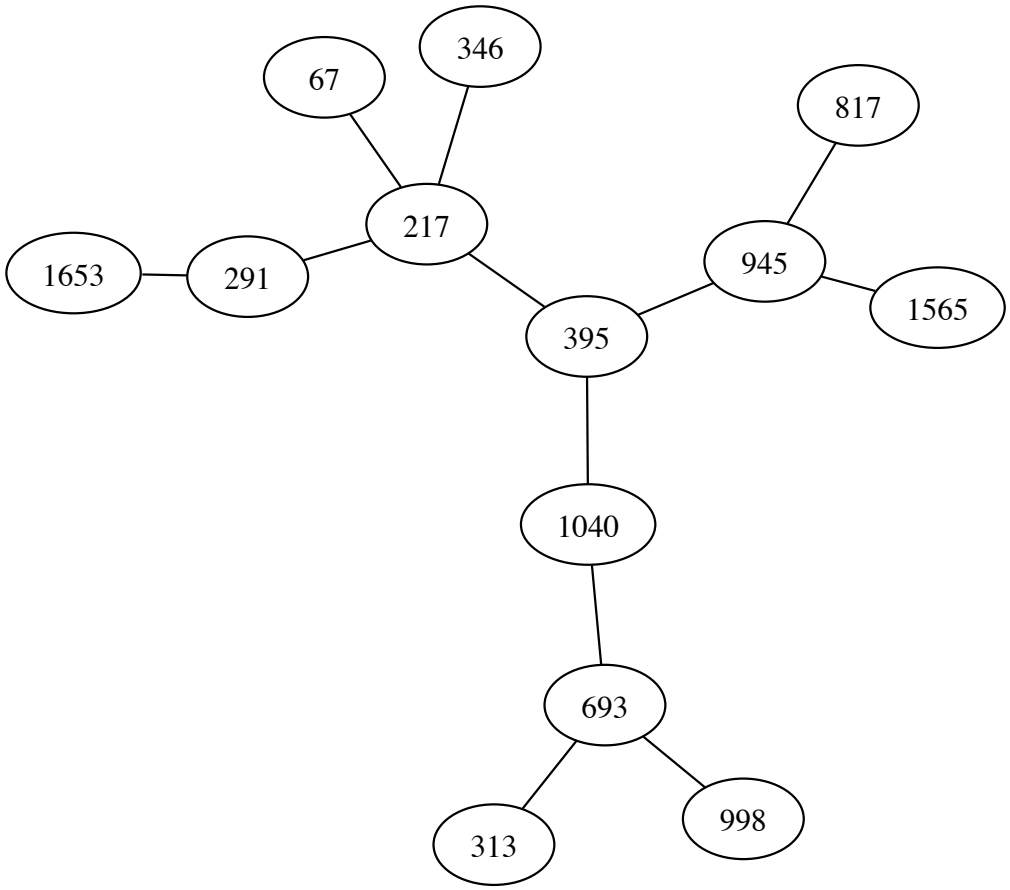


Figure 54a. Selected width-2 mutations between Minkowski polynomials in bucket 54

Table 54. Laurent polynomials and selected mutations for bucket 54.

Node	Laurent polynomial	Mutations from Figure 54a
67	$xy+x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{x^2z}$	217: $\left(\frac{x+y}{xy}, z, \frac{x^2}{x+y}\right)$
217	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}$	67: $\left(\frac{xz+1}{x}, \frac{xz+1}{x^2z}, y\right)$ 291: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}, y\right)$ 346: $\left(\frac{(y+1)(xz+1)}{x^2z}, \frac{(y+1)(xz+1)}{x}, y\right)$ 395: $\left(\frac{1}{y}, \frac{z+1}{xz}, \frac{z+1}{x}\right)$
291	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	217: $\left(\frac{xy+z+1}{y}, z, \frac{xy^2}{xy+z+1}\right)$ 1653: $\left(\frac{x^4y^2z}{x^3y^2z+x^2yz+1}, \frac{x^3yz}{x^3y^2z+x^2yz+1}, \frac{x^3y^2z+x^2yz+1}{x^3y^2}\right)$
313	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	693: $\left(x, y+z, \frac{z}{xy}\right)$
346	$x+yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2z}+\frac{1}{x^2z}$	217: $\left(\frac{(z+1)(x+y)}{xy}, z, \frac{y^2}{(z+1)(x+y)}\right)$
395	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	217: $\left(\frac{y+z}{yz}, \frac{1}{x}, \frac{z}{y}\right)$ 945: $\left(x, \frac{x^2yz+x+1}{x^2y^2z}, \frac{xy}{x^2yz+x+1}\right)$ 1040: $\left(\frac{y+z(y+1)^2}{xyz}, \frac{y+z(y+1)^2}{xy}, y\right)$
693	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	313: $\left(x, \frac{y}{xz+1}, \frac{xyz}{xz+1}\right)$ 998: $\left(x, \frac{x^2yz}{(x+1)(xz+1)}, \frac{xy}{(x+1)(xz+1)}\right)$ 1040: $\left(x, y, \frac{y}{z(xy+y+1)}\right)$
817	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^3z^2}$	945: $\left(\frac{x^2y^2z+xyz+1}{x^2yz}, \frac{x^3y^2z}{x^2y^2z+xyz+1}, z\right)$
945	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	395: $\left(x, \frac{xyz+x+yz}{xy}, \frac{1}{z(xyz+x+yz)}\right)$ 817: $\left(\frac{x^2y^2z+xyz+1}{x^2yz}, \frac{x^3y^2z}{x^2y^2z+xyz+1}, z\right)$ 1565: $\left(\frac{(xy+1)(x^2y^2z+xyz+1)}{x^3y^2z}, \frac{x^4y^3z}{(xy+1)(x^2y^2z+xyz+1)}, z\right)$
998	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^3yz}$	693: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{y}{xz}\right)$

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Table 54 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 54a
1040	$x+yz+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$395\colon \left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{y}{x}\right)$ $693\colon \left(x, y, \frac{y}{z(xy+y+1)}\right)$
1565	$x+y+z+\frac{3}{x}+\frac{2}{xy}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{2}{x^4y^3z}+\frac{1}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	$945\colon \left(\frac{(xy+1)(x^2y^2z+xyz+1)}{x^3y^2z}, \frac{x^4y^3z}{(xy+1)(x^2y^2z+xyz+1)}, z\right)$
1653	$x+y+z+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	$291\colon \left(\frac{x^3z+x^2yz+y^2}{x^2z}, \frac{x^3z}{y(x^3z+x^2yz+y^2)}, \frac{x^3z^2}{x^3z+x^2yz+y^2}\right)$

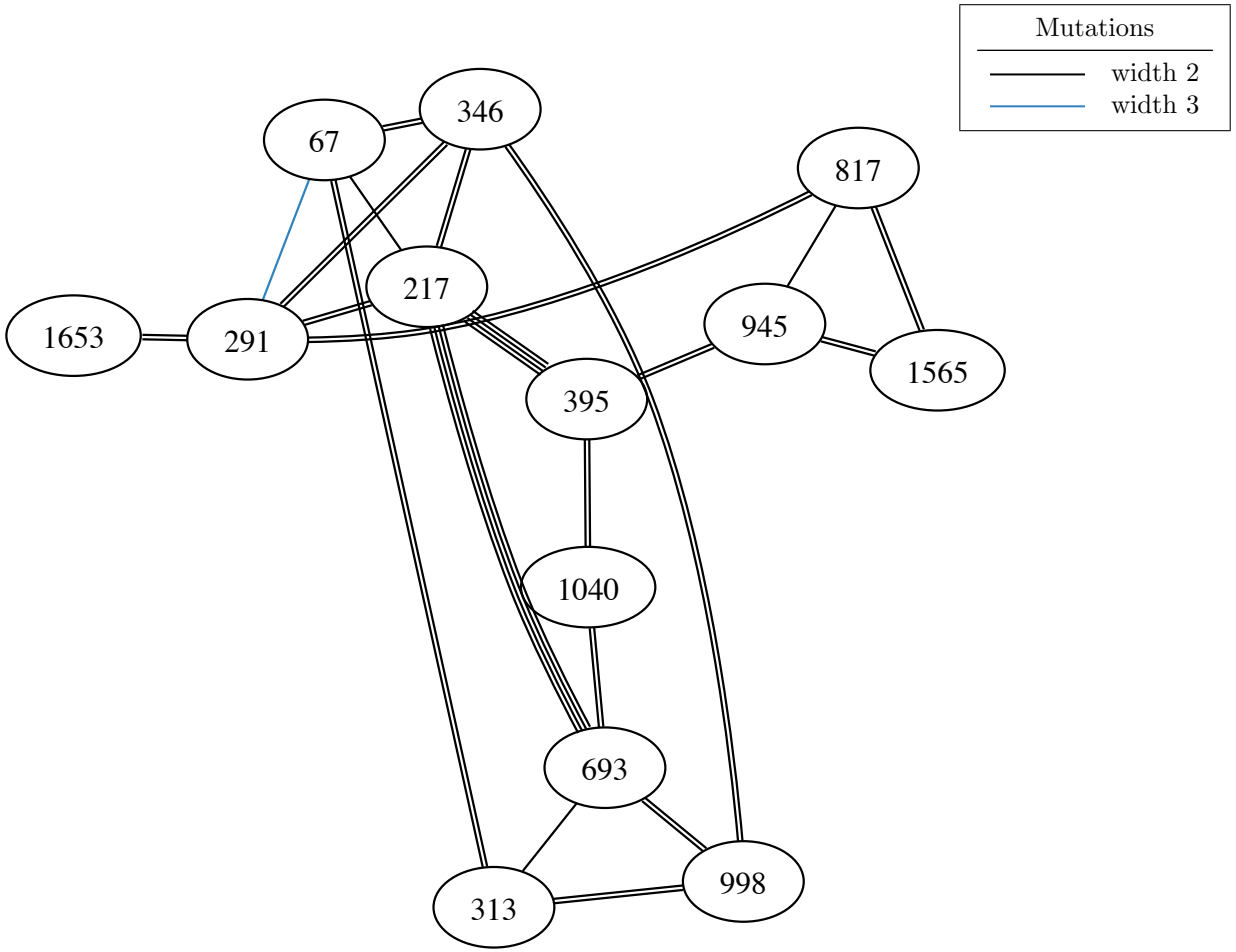
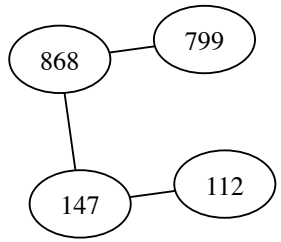
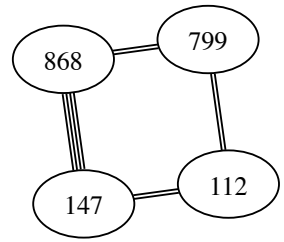


FIGURE 54B. All mutations between Minkowski polynomials in bucket 54

Bucket 55



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 55. Mutations between Minkowski polynomials in bucket 55

Table 55. Laurent polynomials and selected mutations for bucket 55.

Node	Laurent polynomial	Mutations from Figure 55a
112	$x+y+z+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{3}{x^2y}+\frac{1}{x^3y^2}$	147: $\left(\frac{(x+y)^2}{x^2y}, \frac{x^3}{(x+y)^2}, z\right)$
147	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y}{x^2}$	112: $\left(\frac{(xy+1)^2}{x^2y}, \frac{(xy+1)^2}{x^3y^2}, z\right)$ 868: $\left(\frac{x^3yz}{x^2yz+xz+1}, \frac{x^2z}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2y}\right)$
799	$x+y+z+\frac{3}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^3z}$	868: $\left(x, y, \frac{(xy+1)^2}{x^4y^2z}\right)$
868	$x+y+z+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	147: $\left(\frac{x^2z+xyz+y}{xz}, \frac{x^2z}{y(x^2z+xyz+y)}, \frac{x^2z^2}{x^2z+xyz+y}\right)$ 799: $\left(x, y, \frac{(xy+1)^2}{x^4y^2z}\right)$

Bucket 56

(a) A spanning tree consisting of width-2 mutations

(b) All mutations are of width 2

Figure 56. Mutations between Minkowski polynomials in bucket 56

Table 56. Laurent polynomials and selected mutations for bucket 56.

Node	Laurent polynomial	Mutations from Figure 56a
192	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	347: $\left(x, \frac{xy}{xyz+x+1}, \frac{1}{xyz}\right)$
347	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	192: $\left(x, \frac{y(xz+z+1)}{xz}, \frac{1}{y(xz+z+1)}\right)$ 586: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$ 1331: $\left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{y+z(xy+1)^2}, \frac{y+z(xy+1)^2}{x^2y^2}\right)$
586	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^3y^2}$	347: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$

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Table 56 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 56a
1331	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	347: $\left(\frac{x+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{x+z(xy+1)^2}, \frac{x^2y^2z^2}{x+z(xy+1)^2}\right)$ 1731: $\left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$
1731	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{3z}{x^2y^2}+\frac{1}{x^3y^2}+\frac{z}{x^3y^3}$	1331: $\left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$

Bucket 57

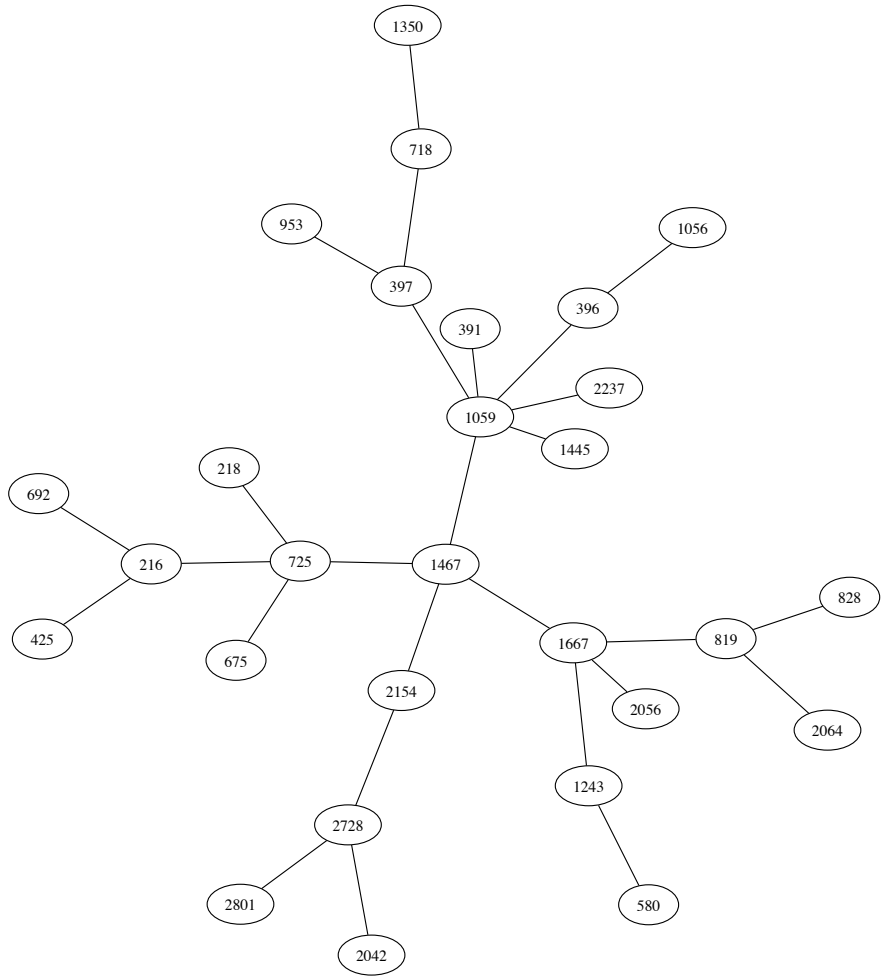

Figure 57a. Selected width-2 mutations between Minkowski polynomials in bucket 57

Table 57. Laurent polynomials and selected mutations for bucket 57.

Node	Laurent polynomial	Mutations from Figure 57a
216	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}$	425: $\left(y, x, \frac{z(y+1)}{y}\right)$ 692: $\left(\frac{x}{yz+z+1}, \frac{yz+z+1}{xyz}, \frac{yz+z+1}{xz}\right)$ 725: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, y\right)$
218	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xyz}$	725: $\left(\frac{x}{y+1}, \frac{xy}{y+1}, \frac{y+1}{x^2yz}\right)$
391	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	1059: $\left(x, \frac{xy}{x+1}, z\right)$
396	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1056: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{xyz+(y+1)^2}{x^2yz}, y\right)$ 1059: $\left(x, \frac{x^2yz}{(x+1)(xz+1)}, \frac{xy}{(x+1)(xz+1)}\right)$
397	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	718: $\left(x, \frac{x}{y(x+1)}, z\right)$ 953: $\left(\frac{(z+1)(yz+y+z)}{xyz}, \frac{(z+1)(yz+y+z)}{xz}, z\right)$ 1059: $\left(x, \frac{xy}{(z+1)(x+1)}, \frac{xyz}{(z+1)(x+1)}\right)$
425	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}$	216: $\left(y, x, \frac{xz}{x+1}\right)$
580	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	1243: $\left(y, \frac{xyz}{yz+(z+1)^2}, \frac{x}{yz+(z+1)^2}\right)$
675	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	725: $\left(x, y, \frac{y+1}{x^2yz}\right)$
692	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	216: $\left(\frac{xyz+y+z}{yz}, \frac{z}{y}, \frac{1}{xz}\right)$
718	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	397: $\left(x, \frac{x}{y(x+1)}, z\right)$ 1350: $\left(\frac{y+z(y+1)^2}{xyz}, \frac{y+z(y+1)^2}{xy}, y\right)$
725	$x+yz+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	216: $\left(x+y, \frac{1}{z}, \frac{y}{x(x+y)}\right)$ 218: $\left(x+y, \frac{y}{x}, \frac{1}{yz(x+y)}\right)$ 675: $\left(x, y, \frac{y+1}{x^2yz}\right)$ 1467: $\left(x, \frac{x}{y(xz+x+1)}, \frac{y(xz+x+1)}{x^3z}\right)$

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Table 57 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 57a
819	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{y}{x^4z^2}$	828: $\left(\frac{xy^2z+(yz+1)^2}{xyz}, \frac{xy^2z+(yz+1)^2}{x^2y^2z}, \frac{x}{xy^2z+(yz+1)^2}\right)$ 1667: $\left(x, y(yz+1), \frac{yz+1}{x^2z}\right)$ 2064: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{z(xy+1)}{xy}\right)$
828	$x+y+z+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	819: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^2z+y(xz+1)^2}{x^4z^2}\right)$
953	$x+y+z+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	397: $\left(x+y, \frac{y}{x}, z\right)$
1056	$x+y+z+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	396: $\left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{x^2z}{xz+y(z+1)^2}\right)$
1059	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	391: $\left(x, \frac{y(x+1)}{x}, z\right)$ 396: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{y}{xz}\right)$ 397: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{z}{y}\right)$ 1445: $\left(x, y, \frac{1}{z(xy+x+1)}\right)$ 1467: $\left(\frac{x^2z+xyz+y}{x^2yz}, \frac{x^3z}{x^2z+xyz+y}, \frac{xy}{x^2z+xyz+y}\right)$ 2237: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$
1243	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	580: $\left(\frac{x^2yz+(xz+y)^2}{x^2z}, x, \frac{y}{xz}\right)$ 1667: $\left(\frac{yz+1}{y}, \frac{x}{yz+1}, \frac{xyz}{yz+1}\right)$
1350	$x+yz+y+z+\frac{y^2z}{x}+\frac{3yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	718: $\left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{y}{x}\right)$
1445	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1059: $\left(x, y, \frac{1}{z(xy+x+1)}\right)$
1467	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{2y}{x^2}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	725: $\left(x, \frac{x^2z}{x^2yz+xyz+1}, \frac{1}{x^2yz}\right)$ 1059: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{1}{z(xy+xz+1)}\right)$ 1667: $\left(x, y, \frac{1}{xz(xy+x+y)}\right)$ 2154: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{xy+1}{x^3yz}\right)$

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Table 57 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 57a
1667	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y^2z}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{2y}{x^2}+\frac{1}{x^2z}$	819: $\left(x, \frac{x^2yz}{x^2z+y}, \frac{x^2z+y}{x^4z^2}\right)$ 1243: $\left(y+z, \frac{y+z}{xy}, \frac{xz}{y+z}\right)$ 1467: $\left(x, y, \frac{1}{xz(xy+x+y)}\right)$ 2056: $\left(\frac{x+z(xy+1)^2}{x^2yz}, \frac{x+z(xy+1)^2}{x^3y^2z}, \frac{x^2y^2z^2}{x+z(xy+1)^2}\right)$
2042	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{3}{x^2y}+\frac{z^2}{x^3y^2}+\frac{2z}{x^3y^2}+\frac{1}{x^3y^2}$	2728: $\left(\frac{x^2y^2}{xy^2+xyz+z}, \frac{xy^2+xyz+z}{xy}, \frac{x^2yz}{xy^2+xyz+z}\right)$
2056	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2y^2z}+\frac{2z}{x^3y}+\frac{2}{x^3y^2}+\frac{z}{x^4y^2}$	1667: $\left(\frac{y+z(x+y)^2}{x^2yz}, \frac{x^3z}{y+z(x+y)^2}, \frac{y+z(x+y)^2}{x^2}\right)$
2064	$x+y+z+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{4}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	819: $\left(x+y, \frac{x}{y(x+y)}, \frac{xz}{x+y}\right)$
2154	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{2}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	1467: $\left(x+y, \frac{x}{y(x+y)}, \frac{1}{xz(x+y)}\right)$ 2728: $\left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$
2237	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	1059: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$
2728	$x+y+z+\frac{2z}{y}+\frac{z}{y^2}+\frac{3}{x}+\frac{4z}{xy}+\frac{2}{xy}+\frac{4z}{xy^2}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{6z}{x^2y^2}+\frac{2z}{x^2y^3}+\frac{2}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z}{x^4y^4}$	2042: $\left(\frac{x^2y+xyz+z}{xy}, \frac{x^2y^2}{x^2y+xyz+z}, \frac{xy^2z}{x^2y+xyz+z}\right)$ 2154: $\left(x, y, \frac{y^2}{z(x^2y+(xy+1)^2)}\right)$ 2801: $\left(\frac{x^2y+z(xy+1)^3}{x^3y^2z}, \frac{x^4y^3z}{x^2y+z(xy+1)^3}, \frac{x^3y^3z^2}{x^2y+z(xy+1)^3}\right)$
2801	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{4z}{x^2y}+\frac{3}{x^2y}+\frac{3z}{x^3y}+\frac{2z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{3z}{x^4y^2}+\frac{z}{x^5y^3}$	2728: $\left(\frac{xy^2+z(xy+1)^3}{x^3y^2z}, \frac{x^4y^3z}{xy^2+z(xy+1)^3}, \frac{xy^2+z(xy+1)^3}{x^3y^3}\right)$

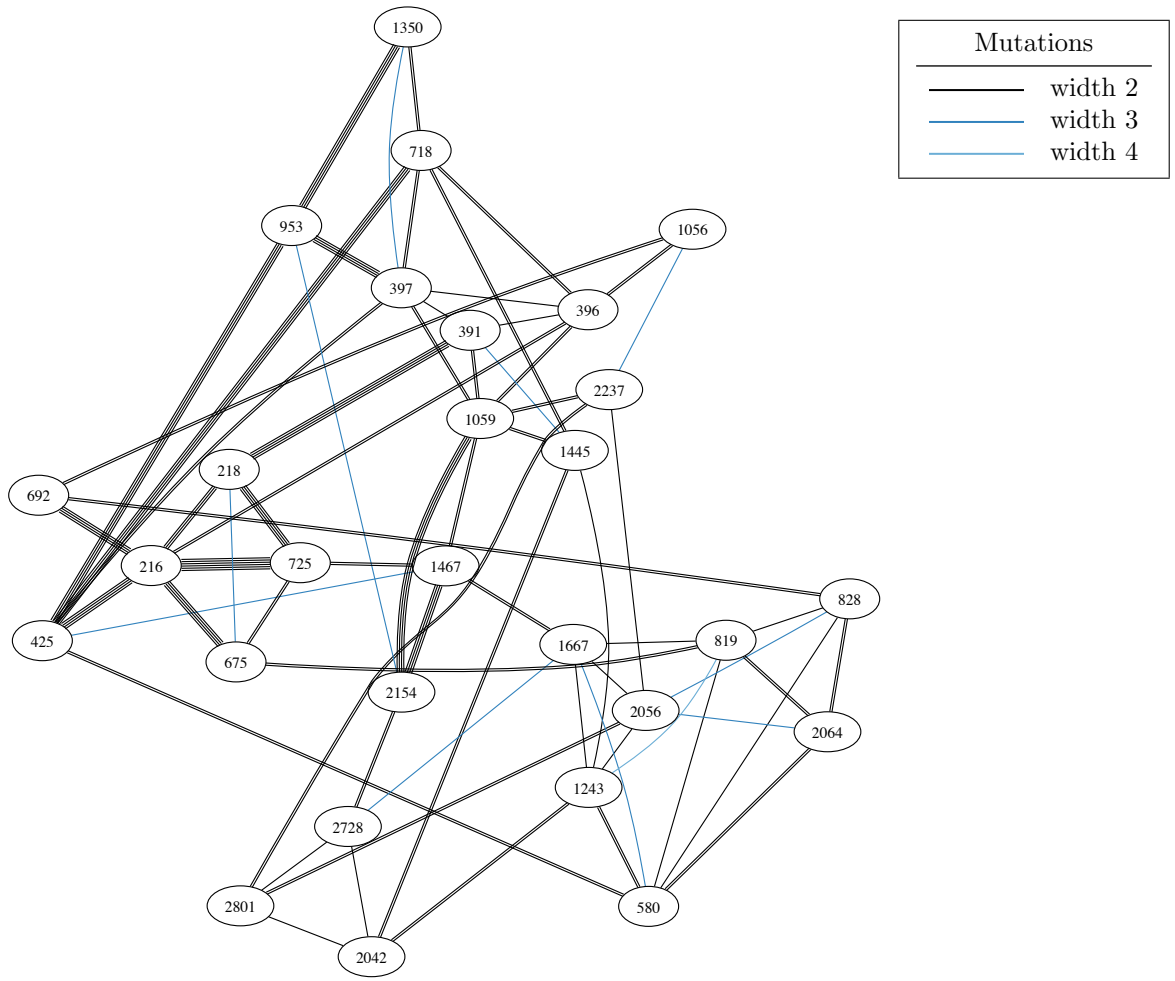

FIGURE 57B. All mutations between Minkowski polynomials in bucket 57

Bucket 58

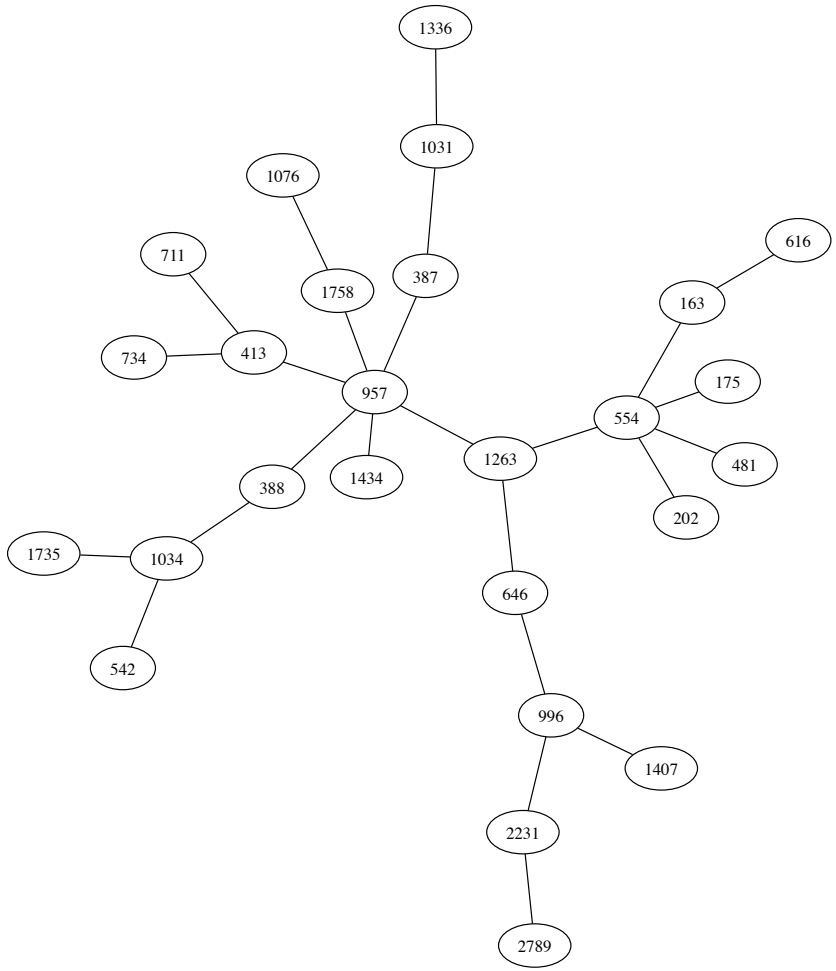

Figure 58a. Selected width-2 mutations between Minkowski polynomials in bucket 58

Table 58. Laurent polynomials and selected mutations for bucket 58.

Node	Laurent polynomial	Mutations from Figure 58a
163	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	554: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$ 616: $\left(x, \frac{xy}{xyz+x+yz}, \frac{xy^2z}{xyz+x+yz}\right)$
175	$xy+x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{x^2z}$	554: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^2yz}{(xz+1)(xz+y+1)}, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
202	$xy+x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xyz}$	554: $\left(\frac{(y+1)(xz+1)}{x^2z}, \frac{x^2yz}{(y+1)(xz+1)}, \frac{(y+1)(xz+1)}{xy}\right)$
387	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2z}$	957: $\left(\frac{x}{z+1}, \frac{xz}{z+1}, y\right)$ 1031: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
388	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{z}{x^2y}$	957: $\left(\frac{(z+1)(y+z+1)}{xz}, \frac{xy}{(z+1)(y+z+1)}, y\right)$ 1034: $\left(x, \frac{x^2+xz+z}{x^2y}, z\right)$
413	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xyz}$	711: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 734: $\left(z, \frac{yz+1}{xyz}, y\right)$ 957: $\left(\frac{(z+1)(y+z)}{xyz}, \frac{(z+1)(y+z)}{xz}, \frac{xy}{(z+1)(y+z)}\right)$
481	$x+y+z+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	554: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$
542	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^3y^2}$	1034: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{z(xy+1)}{xy}\right)$
554	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	163: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$ 175: $\left(\frac{(xz+1)(xy+xz+1)}{x^2z}, xy, \frac{x^3z^2}{(xz+1)(xy+xz+1)}\right)$ 202: $\left(\frac{(yz+1)(xy+1)}{xyz}, xy, \frac{xy^2z^2}{(yz+1)(xy+1)}\right)$ 481: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$ 1263: $\left(x, \frac{(xz+1)^2}{x^2yz}, z\right)$
616	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2z}+\frac{1}{x^2y}$	163: $\left(x, \frac{xy+xz+z}{x}, \frac{xz}{y(xy+xz+z)}\right)$

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Table 58 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 58a
646	$x+yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y}{x^2z}+\frac{1}{x^2z}$	996: $\left(x, y, \frac{xy+y+1}{x^2z}\right)$ 1263: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^2yz+(xz+1)^2}{x^3yz}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$
711	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	413: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$
734	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{1}{xyz^2}$	413: $\left(\frac{xz+1}{xyz}, z, x\right)$
957	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	387: $\left(x+y, z, \frac{y}{x}\right)$ 388: $\left(\frac{(xy+z)(xyz+xy+z)}{x^2yz}, z, \frac{z}{xy}\right)$ 413: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{y}{x}, \frac{1}{xz}\right)$ 1263: $\left(x, \frac{x^3yz^2}{(xz+1)(x^2z+xz+1)}, \frac{x^2yz}{(xz+1)(x^2z+xz+1)}\right)$ 1434: $(x, y(z+1), z)$ 1758: $\left(x, \frac{(y+1)^2}{xz}, y\right)$
996	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	646: $\left(x, y, \frac{xy+y+1}{x^2z}\right)$ 1407: $\left(x, \frac{xyz}{xz+y+z}, \frac{y^2}{xz+y+z}\right)$ 2231: $\left(x, \frac{xyz}{(z+1)(xz+z+1)}, \frac{y}{(z+1)(xz+z+1)}\right)$
1031	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	387: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$ 1336: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$
1034	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	388: $\left(x, \frac{x^2+xz+z}{x^2y}, z\right)$ 542: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{xyz}{xy+1}\right)$ 1735: $\left(\frac{x^2y^2}{(y+z)(xy+1)}, \frac{(y+z)(xy+1)}{xy}, \frac{x^2yz}{(y+z)(xy+1)}\right)$
1076	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z^2}$	1758: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{xyz+(y+1)^2}{x^2yz}, \frac{x}{xyz+(y+1)^2}\right)$

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Table 58 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 58a
1263	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	554: $\left(x, \frac{(xz+1)^2}{x^2yz}, z\right)$ 646: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$ 957: $\left(x, \frac{(y+z)(xy+y+z)}{xy}, \frac{y}{xz}\right)$
1336	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{1}{xy}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3y^2}$	1031: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$
1407	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	996: $\left(x, \frac{xy+xz+y}{x}, \frac{y(xy+xz+y)}{x^2z}\right)$
1434	$x+yz+y+z+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	957: $\left(x, z, \frac{y}{z+1}\right)$
1735	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}+\frac{3}{x^2y}+\frac{3z}{x^2y^2}+\frac{1}{x^3y^2}+\frac{z}{x^3y^3}$	1034: $\left(\frac{(x+z)(xy+1)}{xy}, \frac{x^2y^2}{(x+z)(xy+1)}, \frac{xy^2z}{(x+z)(xy+1)}\right)$
1758	$x+y+z+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	957: $\left(x, z, \frac{(z+1)^2}{xy}\right)$ 1076: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{1}{xz}, \frac{x^3z}{x^2z+y(xz+1)^2}\right)$
2231	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	996: $\left(x, \frac{(xz+y)(xy+xz+y)}{x^2z}, \frac{y}{xz}\right)$ 2789: $\left(\frac{(xy+z+1)^2}{x^2y}, \frac{x^3y^2}{(xy+z+1)^2}, z\right)$
2789	$x+y+z+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{3z^2}{x^2y}+\frac{6z}{x^2y}+\frac{3}{x^2y}+\frac{z^3}{x^3y^2}+\frac{3z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}$	2231: $\left(\frac{(xy+z+1)^2}{x^2y}, \frac{x^3y^2}{(xy+z+1)^2}, z\right)$

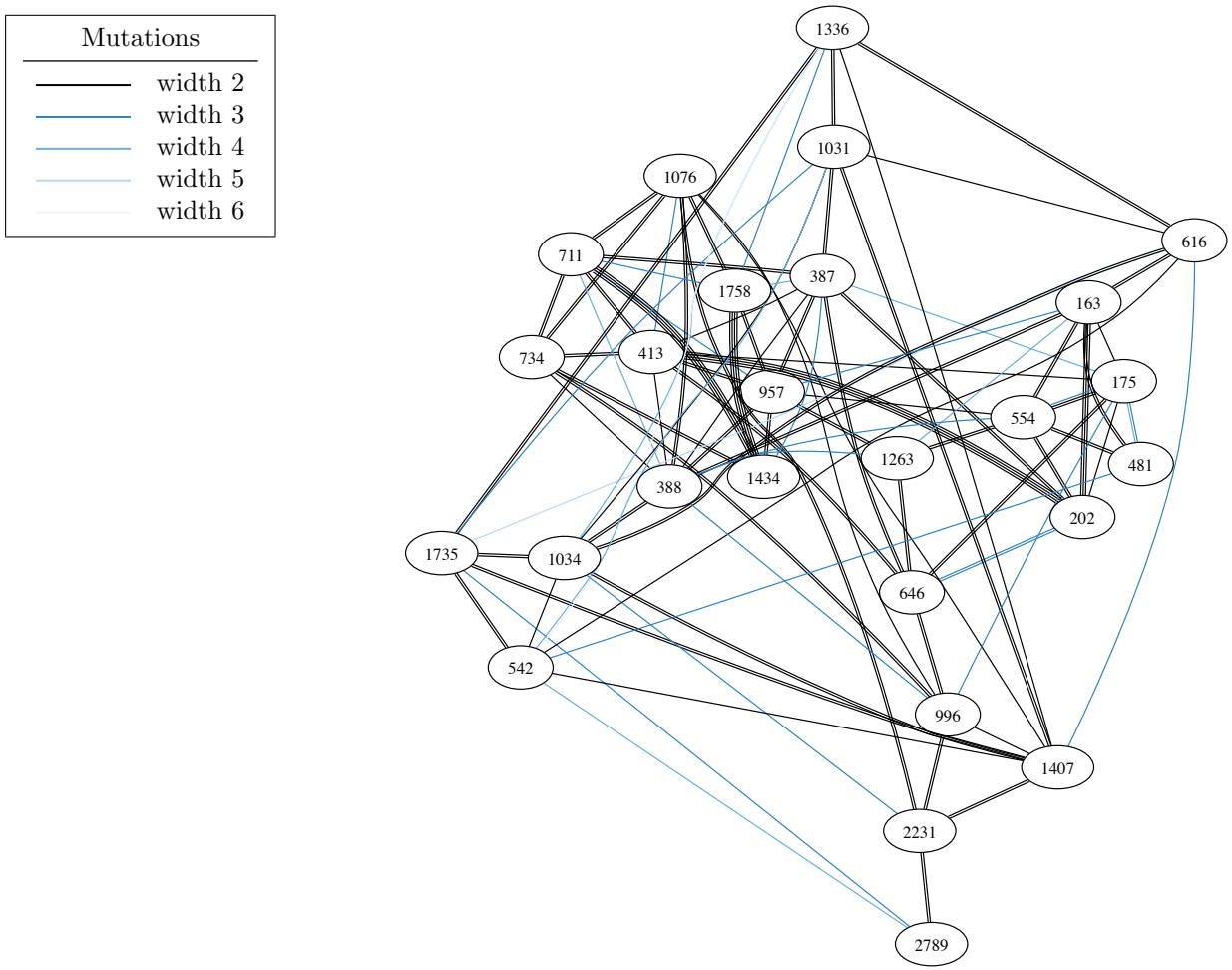

FIGURE 58B. All mutations between Minkowski polynomials in bucket 58

Bucket 59

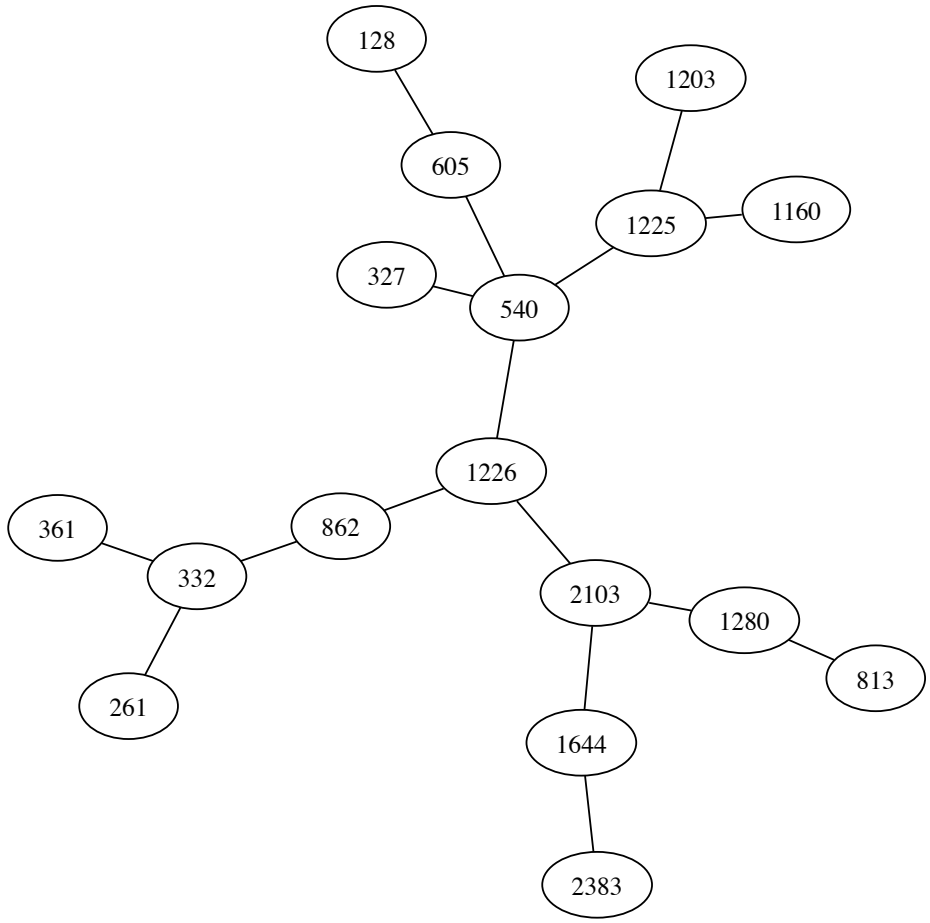

Figure 59a. Selected width-2 mutations between Minkowski polynomials in bucket 59

Table 59. Laurent polynomials and selected mutations for bucket 59.

Node	Laurent polynomial	Mutations from Figure 59a
128	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}$	$605\colon \left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{x+y}{x^2yz}\right)$
261	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	$332\colon \left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$
327	$x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	$540\colon \left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2yz}, \frac{x^2}{xyz+x+y}\right)$
332	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	$261\colon \left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$ $361\colon \left(\frac{z(xy+1)}{xy}, x, y\right)$ $862\colon \left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{1}{y}\right)$
361	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$332\colon \left(y, z, \frac{xyz}{yz+1}\right)$
540	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{y}{x^3z}$	$327\colon \left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2z}, \frac{x^2y}{xy+xz+1}\right)$ $605\colon \left(x, y, \frac{x+y}{x^2yz}\right)$ $1225\colon \left(\frac{(xy+xz+1)(x^2yz+xy+1)}{x^3yz}, \frac{(xy+xz+1)(x^2yz+xy+1)}{x^4y^2z}, \frac{x^4yz^2}{(xy+xz+1)(x^2yz+xy+1)}\right)$ $1226\colon \left(x, \frac{x^3z}{y(1+xz(x+1)^2)}, z\right)$
605	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	$128\colon \left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xyz}{xy+1}\right)$ $540\colon \left(x, y, \frac{x+y}{x^2yz}\right)$
813	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	$1280\colon \left(\frac{x+y+z}{xy}, \frac{x^2}{x+y+z}, \frac{y(x+y+z)}{x^2z}\right)$
862	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	$332\colon \left(\frac{xy+1}{x}, \frac{1}{z}, \frac{x^2y}{xy+1}\right)$ $1226\colon \left(\frac{x^3z}{x^2z+y}, \frac{x^2yz}{x^2z+y}, \frac{x^2z+y}{x^2}\right)$
1160	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xy}+\frac{4}{x^2z}+\frac{3}{x^2y}+\frac{6}{x^3yz}+\frac{1}{x^3y^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^3z}$	$1225\colon \left(x, y, \frac{(xy+1)^3}{x^4y^2z}\right)$
1203	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	$1225\colon \left(x, y, \frac{xy+1}{x^2z}\right)$

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Table 59 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 59a
1225	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	540: $\left(\frac{(xyz+x+y)(x^2z+x+y)}{x^3yz}, \frac{x^4z}{(xyz+x+y)(x^2z+x+y)}, \frac{x^4yz^2}{(xyz+x+y)(x^2z+x+y)}\right)$ 1160: $\left(x, y, \frac{(xy+1)^3}{x^4y^2z}\right)$ 1203: $\left(x, y, \frac{xy+1}{x^2z}\right)$
1226	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{y}{x^4z^2}$	540: $\left(x, \frac{x^3z}{y(1+xz(x+1)^2)}, z\right)$ 862: $\left(\frac{x^2z+y}{xz}, \frac{y(x^2z+y)}{x^2z}, \frac{x^2z^2}{x^2z+y}\right)$ 2103: $\left(x, \frac{y(x^2z+y)}{x^2z}, \frac{x^2z+y}{x^2}\right)$
1280	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	813: $\left(\frac{xy^2z+yz+1}{xyz}, \frac{xy^2z+yz+1}{x^2y^2z}, \frac{xy^2z+yz+1}{x^2y^3z^2}\right)$ 2103: $\left(x, y, \frac{x^2yz}{x+y(x+1)^2}\right)$
1644	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2103: $\left(\frac{x^3z}{x^2z+y}, \frac{x^2z+y}{x^2yz}, \frac{x^2z+y}{x^2}\right)$ 2383: $\left(\frac{(xy+1)(x^3y^3z^2+(xyz+1)^2)}{x^4y^3z^2}, \frac{x^5y^4z^2}{(xy+1)(x^3y^3z^2+(xyz+1)^2)}, z\right)$
2103	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{2y^2}{x^3z}+\frac{2y}{x^3z}+\frac{y^2}{x^4z}$	1226: $\left(x, \frac{x^2yz}{x^2z+y}, \frac{x^2z^2}{x^2z+y}\right)$ 1280: $\left(x, y, \frac{z(x+y(x+1)^2)}{x^2y}\right)$ 1644: $\left(\frac{x^2yz+1}{xyz}, \frac{x^2yz+1}{x^2y^2z}, \frac{x^2yz^2}{x^2yz+1}\right)$
2383	$x+y+z+\frac{3}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	1644: $\left(\frac{(xy+1)(x^3y^3z^2+(xyz+1)^2)}{x^4y^3z^2}, \frac{x^5y^4z^2}{(xy+1)(x^3y^3z^2+(xyz+1)^2)}, z\right)$

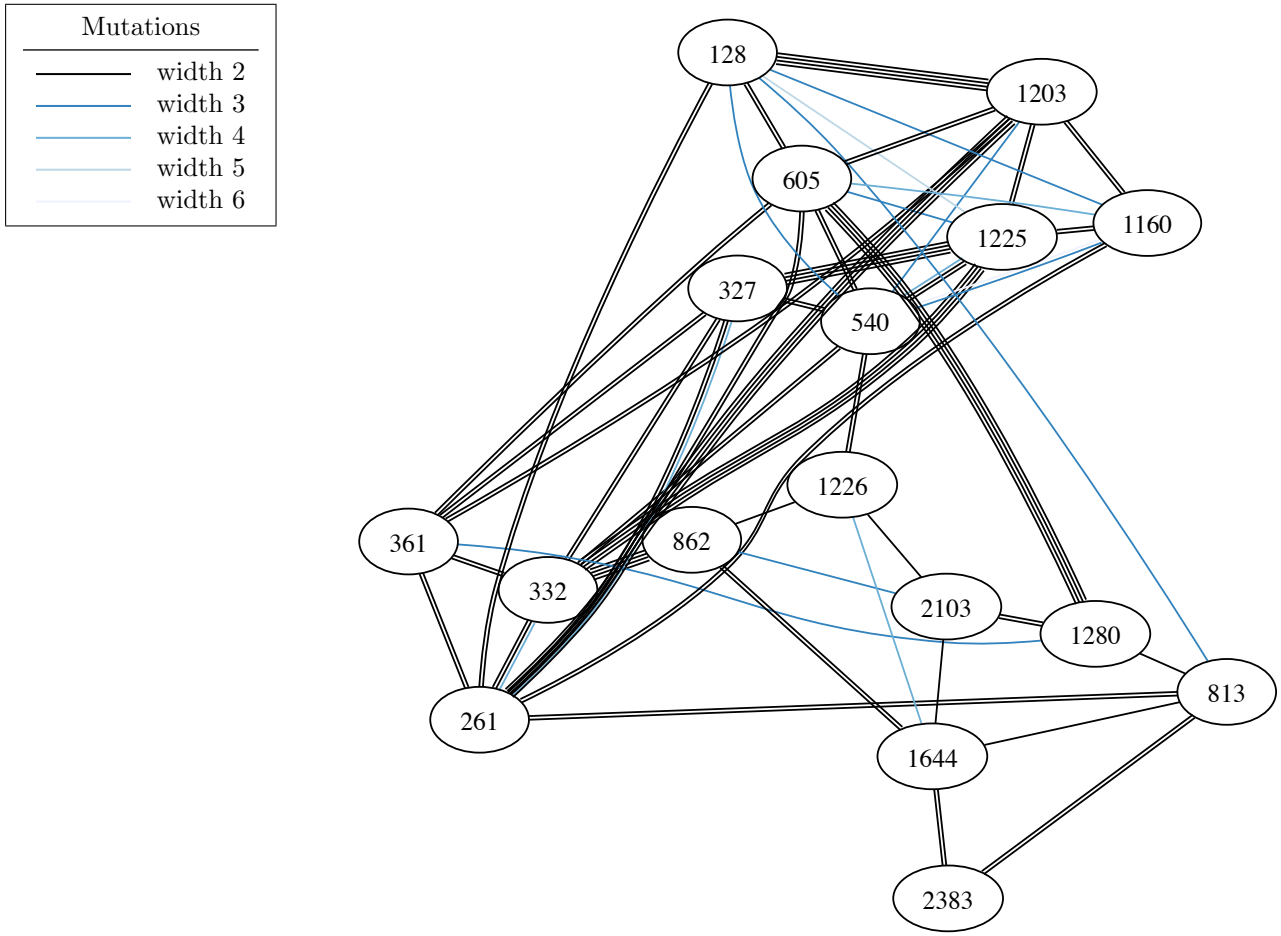


Figure 59b. All mutations between Minkowski polynomials in bucket 59

Bucket 60

Bucket 60 consists of a single Laurent polynomial:

$$f = x + y + \frac{y}{z} + z + \frac{3}{x} + \frac{2}{xy} + \frac{3}{x^2y} + \frac{1}{x^3y^2}$$

The Newton polytope of f has reflexive ID 116.

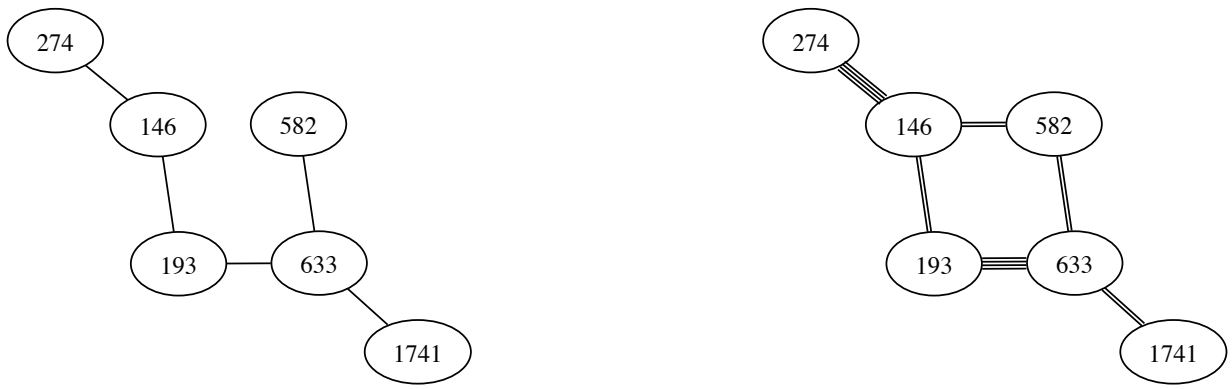
Bucket 61

Bucket 61 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{3}{x} + \frac{1}{xz} + \frac{2}{xy} + \frac{3}{x^2y} + \frac{1}{x^3y^2}$$

The Newton polytope of f has reflexive ID 113.

Bucket 62



(A) A spanning tree consisting of width-2 mutations

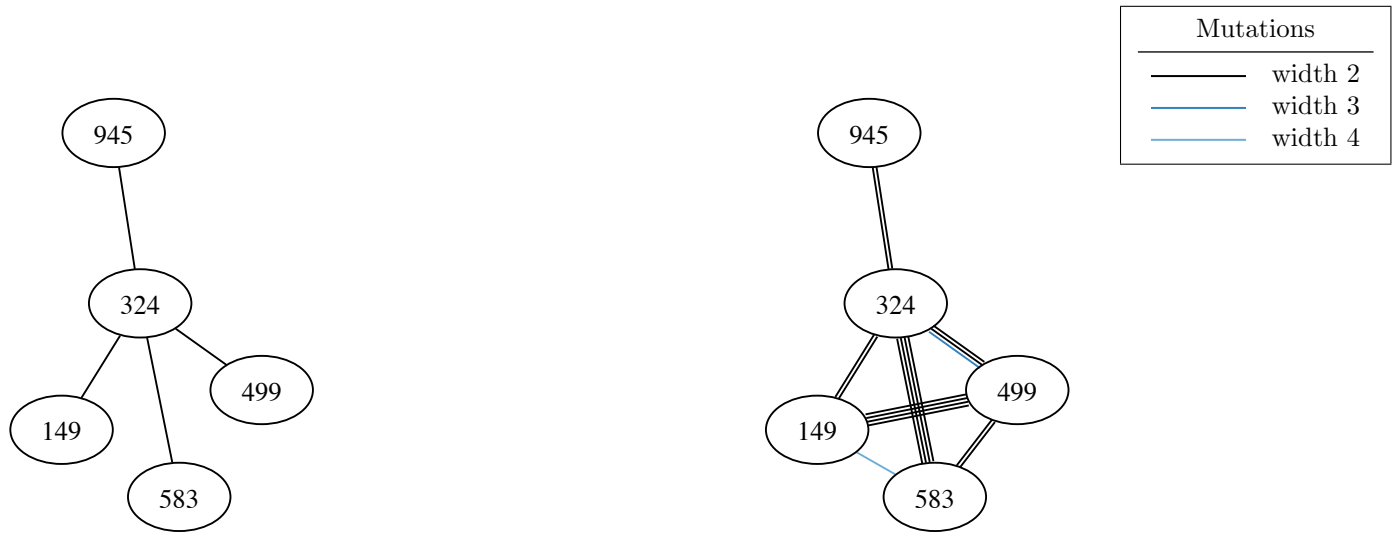
(B) All mutations are of width 2

Figure 62. Mutations between Minkowski polynomials in bucket 62

Table 62. Laurent polynomials and selected mutations for bucket 62.

Node	Laurent polynomial	Mutations from Figure 62a
146	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	193: $\left(x, \frac{x}{y(x+1)}, \frac{1}{xz}\right)$ 274: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, \frac{y(xz+1)}{xz}\right)$
193	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	146: $\left(x, \frac{x}{y(x+1)}, \frac{1}{xz}\right)$ 633: $\left(y, \frac{x^2yz}{xyz+xz+1}, \frac{x}{xyz+xz+1}\right)$
274	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	146: $\left(x+y, \frac{xz}{x+y}, \frac{x}{y(x+y)}\right)$
582	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	633: $\left(x, y, \frac{y+1}{x^2y^2z}\right)$
633	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	193: $\left(\frac{xy+xz+y}{x}, x, \frac{y}{z(xy+xz+y)}\right)$ 582: $\left(x, y, \frac{y+1}{x^2y^2z}\right)$ 1741: $\left(\frac{xy+xz+1}{x}, \frac{x^2y}{xy+xz+1}, \frac{1}{x^2yz}\right)$
1741	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	633: $\left(\frac{x^2y^2z+xyz+1}{x^2yz}, \frac{x^3y^2z}{x^2y^2z+xyz+1}, \frac{x}{x^2y^2z+xyz+1}\right)$

Bucket 63



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 63. Mutations between Minkowski polynomials in bucket 63

Table 63. Laurent polynomials and selected mutations for bucket 63.

Node	Laurent polynomial	Mutations from Figure 63a
149	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	324: $\left(\frac{x+y}{xy}, \frac{x+y}{x^2}, z\right)$
324	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	149: $\left(\frac{x+y}{xy}, \frac{x+y}{x^2}, \frac{y}{z}\right)$ 499: $\left(\frac{(xz+1)(xyz+y+1)}{x^2yz}, \frac{(xz+1)(xyz+y+1)}{x^3yz^2}, y\right)$ 583: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, \frac{y(xz+1)}{xz}\right)$ 945: $\left(x, \frac{x^2y}{x^2yz+(x+1)^2}, \frac{x^2y^2z}{x^2yz+(x+1)^2}\right)$

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Table 63 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 63a
499	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	324: $\left(\frac{(x+y)(xz+yz+y)}{x^2yz}, z, \frac{x^3z}{(x+y)(xz+yz+y)}\right)$
583	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	324: $\left(x+y, \frac{xz}{x+y}, \frac{x}{y(x+y)}\right)$
945	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	324: $\left(x, \frac{x^2z+y(x+1)^2}{x^2}, \frac{x^2z}{y(x^2z+y(x+1)^2)}\right)$

Bucket 64

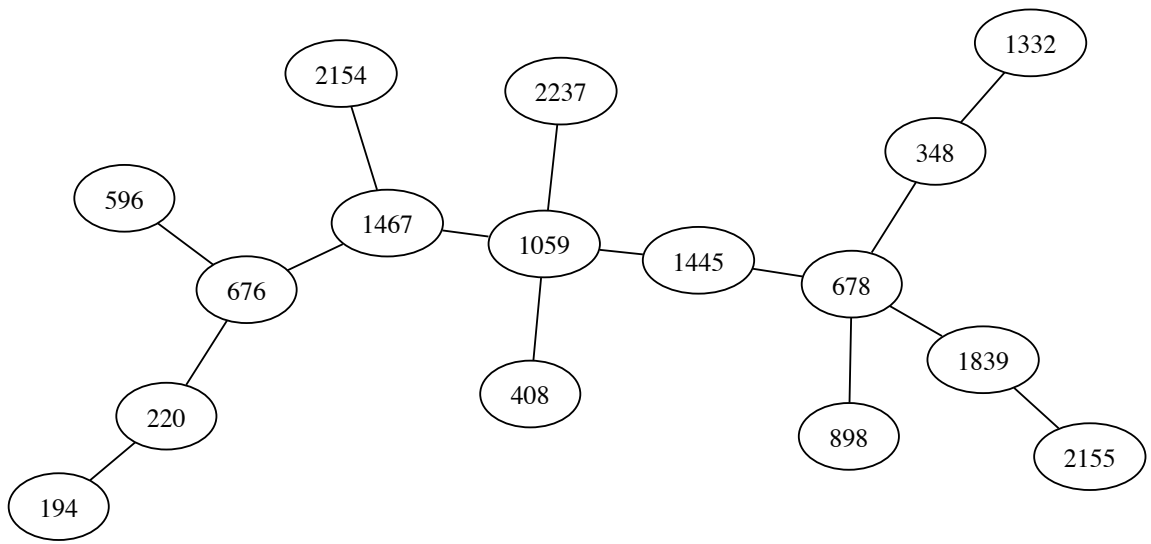

Figure 64a. Selected width-2 mutations between Minkowski polynomials in bucket 64

Table 64. Laurent polynomials and selected mutations for bucket 64.

Node	Laurent polynomial	Mutations from Figure 64a
194	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	220: $\left(\frac{y(x+1)}{x}, x, \frac{x}{z}\right)$
220	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}$	194: $\left(y, \frac{xy}{y+1}, \frac{y}{z}\right)$ 676: $\left(\frac{1}{y}, \frac{x}{xz+y+1}, \frac{x^2z}{xz+y+1}\right)$
348	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}$	678: $\left(\frac{x+y}{xy}, \frac{x^2}{x+y}, \frac{z(x+y)}{x}\right)$ 1332: $\left(\frac{xyz+(xz+1)^2}{x^2z}, \frac{x^3z^2}{xyz+(xz+1)^2}, y\right)$
408	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1059: $\left(x, \frac{xz+x+1}{xy}, \frac{xz+x+1}{x^2yz}\right)$
596	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	676: $\left(x, y, \frac{z(y+1)}{y}\right)$
676	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	220: $\left(\frac{xy+xz+y}{x}, \frac{1}{x}, \frac{xz}{y(xy+xz+y)}\right)$ 596: $\left(x, y, \frac{yz}{y+1}\right)$ 1467: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, z\right)$
678	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	348: $\left(\frac{xy+1}{x}, \frac{xy+1}{x^2y}, \frac{xyz}{xy+1}\right)$ 898: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{(xy+1)(xy+xz+1)}{x^3y^2}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$ 1445: $\left(x, \frac{x^2yz}{x+z(x+1)^2}, \frac{x+z(x+1)^2}{x^2y}\right)$ 1839: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, \frac{xz+y(xz+1)^2}{x^3yz^2}, y\right)$
898	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{3}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3y^2}$	678: $\left(\frac{(x+y)(xyz+x+y)}{x^2y}, \frac{x^3}{(x+y)(xyz+x+y)}, \frac{x^3yz}{(x+y)(xyz+x+y)}\right)$
1059	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	408: $\left(x, \frac{xz+y+z}{xyz}, \frac{y}{xz}\right)$ 1445: $\left(x, y, \frac{1}{z(xy+x+1)}\right)$ 1467: $\left(\frac{x^2z+xyz+y}{x^2yz}, \frac{x^3z}{x^2z+xyz+y}, \frac{xy}{x^2z+xyz+y}\right)$ 2237: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$
1332	$x+y+z+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	348: $\left(\frac{xyz+(xy+1)^2}{x^2y}, z, \frac{x^3y^2}{xyz+(xy+1)^2}\right)$

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Table 64 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 64a
1445	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	$678\colon \left(x, \frac{x+yz(x+1)^2}{x^2z}, yz\right)$ $1059\colon \left(x, y, \frac{1}{z(xy+x+1)}\right)$
1467	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{2}{x}+\frac{2y}{x^2}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	$676\colon \left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, z\right)$ $1059\colon \left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{1}{z(xy+xz+1)}\right)$ $2154\colon \left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{xy+1}{x^3yz}\right)$
1839	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	$678\colon \left(\frac{xy+z(x+y)^2}{x^2yz}, z, \frac{x^3z}{xy+z(x+y)^2}\right)$ $2155\colon \left(x, \frac{x^2z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$
2154	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{2}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	$1467\colon \left(x+y, \frac{x}{y(x+y)}, \frac{1}{xz(x+y)}\right)$
2155	$x+y+z+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	$1839\colon \left(x, \frac{x^2z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$
2237	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	$1059\colon \left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$

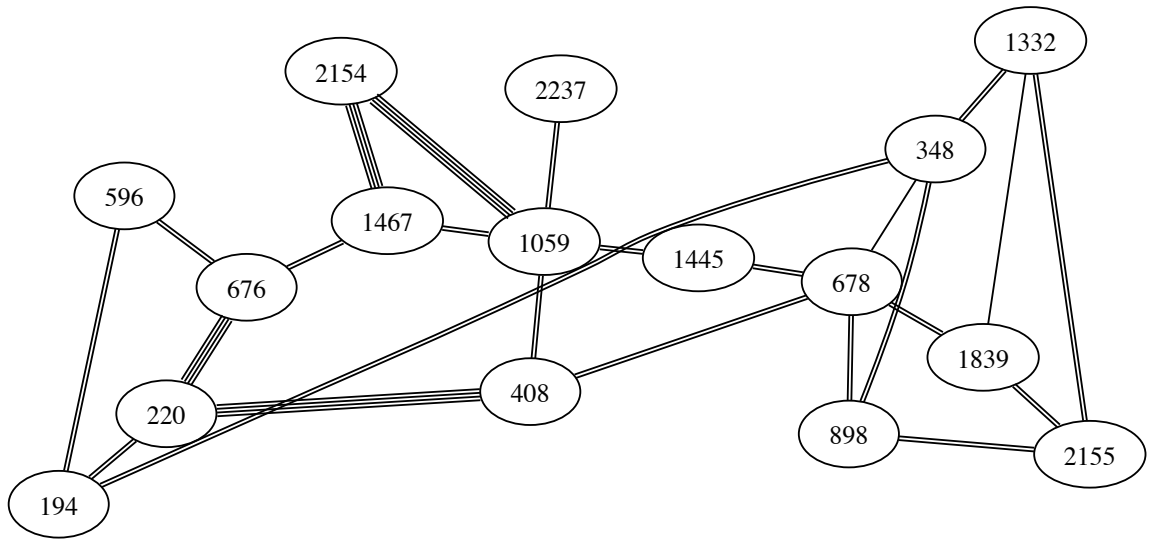

FIGURE 64B. All mutations between Minkowski polynomials in bucket 64 are of width 2

Bucket 65

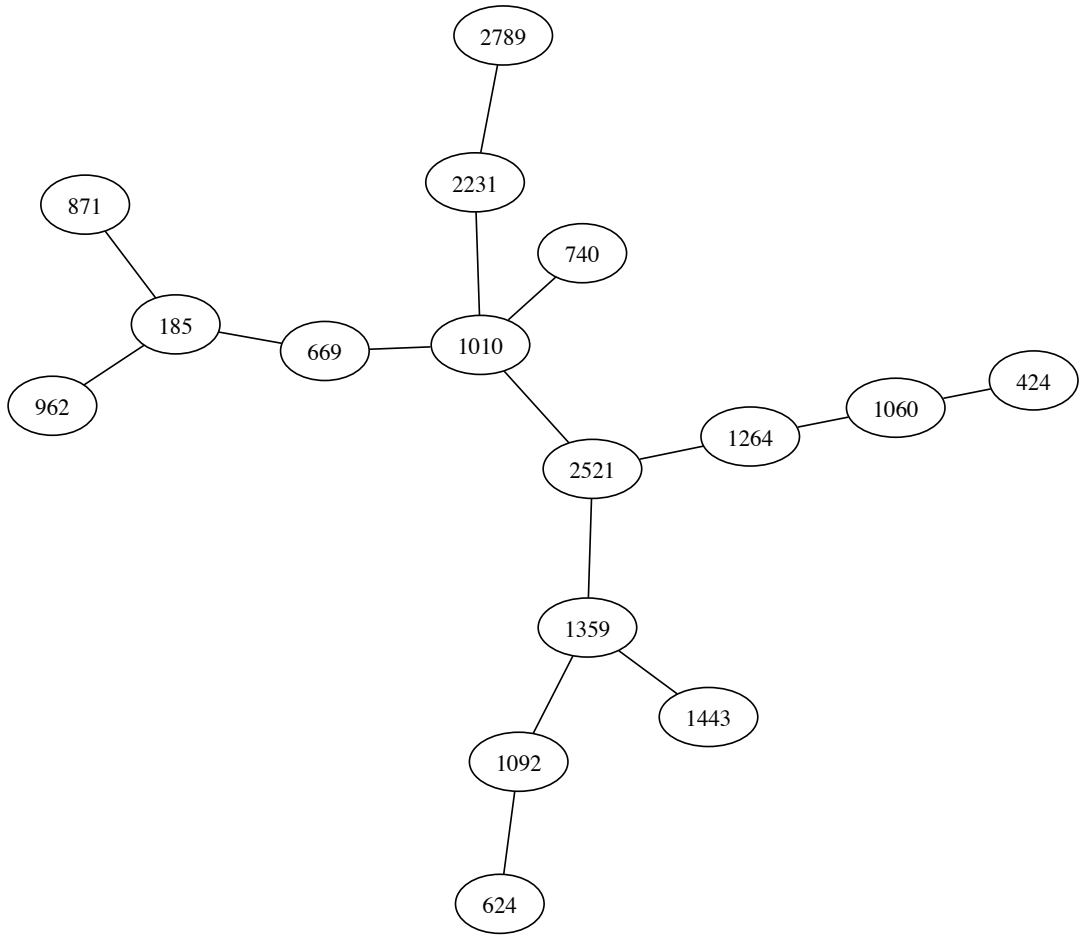

Figure 65a. Selected width-2 mutations between Minkowski polynomials in bucket 65

Table 65. Laurent polynomials and selected mutations for bucket 65.

Node	Laurent polynomial	Mutations from Figure 65a
185	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	669: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 871: $\left(y, \frac{xyz+xz+1}{x^2z}, \frac{xyz+xz+1}{xy}\right)$ 962: $\left(y, \frac{xy}{xz+y}, \frac{xz+y}{x^2yz}\right)$
424	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1060: $\left(\frac{x^2yz}{xyz+y+1}, \frac{xyz+y+1}{xy}, \frac{1}{y}\right)$
624	$x+y+z+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1092: $(x, y(z+1), z)$
669	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	185: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 1010: $\left(x, y, \frac{y}{z(xy+y+1)}\right)$
740	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1010: $\left(\frac{yz+y+z}{xyz}, \frac{xy}{yz+y+z}, y\right)$
871	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}$	185: $\left(\frac{x^2z+xz+y}{xyz}, x, \frac{x^2z^2}{x^2z+xz+y}\right)$
962	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	185: $\left(\frac{xyz+1}{xz}, x, \frac{xyz^2}{xyz+1}\right)$
1010	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	669: $\left(x, y, \frac{y}{z(xy+y+1)}\right)$ 740: $\left(\frac{xyz+z+1}{xz}, z, \frac{1}{xy}\right)$ 2231: $\left(x, \frac{xy}{xz+x+z}, \frac{xyz}{xz+x+z}\right)$ 2521: $\left(\frac{x^3z^2}{(xz+1)(xz+y)}, \frac{(xz+1)(xz+y)}{x^2z}, y\right)$
1060	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	424: $\left(\frac{xy+z+1}{y}, \frac{1}{z}, \frac{xy^2}{xy+z+1}\right)$ 1264: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$
1092	$x+yz+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	624: $\left(x, z, \frac{y}{z+1}\right)$ 1359: $\left(x, \frac{xyz}{xz+z+1}, \frac{xz+z+1}{xy}\right)$
1264	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{y}{x^4z^2}$	1060: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$ 2521: $\left(\frac{(xz+y)(xyz+(y+1)^2)}{x^2yz}, \frac{(xz+y)(xyz+(y+1)^2)}{x^3yz^2}, \frac{x^2z}{(xz+y)(xyz+(y+1)^2)}\right)$

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Table 65 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 65a
1359	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1092: $\left(x, \frac{xyz+yz+1}{xz}, yz\right)$ 1443: $\left(x, y, \frac{1}{z(x+1)}\right)$ 2521: $\left(\frac{x^2z}{xz+y}, \frac{xz+y}{x}, y\right)$
1443	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1359: $\left(x, y, \frac{1}{z(x+1)}\right)$
2231	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	1010: $\left(x, \frac{xy+xz+z}{x}, \frac{z}{y}\right)$ 2789: $\left(\frac{(xy+z+1)^2}{x^2y}, \frac{x^3y^2}{(xy+z+1)^2}, z\right)$
2521	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1010: $\left(\frac{(xy+1)(xy+z)}{xy^2}, z, \frac{x^2y^3}{(xy+1)(xy+z)}\right)$ 1264: $\left(\frac{(x^2z+y)(x^2z+y(xz+1)^2)}{x^4yz^2}, \frac{1}{xz}, \frac{x^5z^2}{(x^2z+y)(x^2z+y(xz+1)^2)}\right)$ 1359: $\left(\frac{xy+z}{y}, z, \frac{xy^2}{xy+z}\right)$
2789	$x+y+z+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3z^2}{x^2y}+\frac{6z}{x^2y}+\frac{3}{x^2y}+\frac{z^3}{x^3y^2}+\frac{3z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}$	2231: $\left(\frac{(xy+z+1)^2}{x^2y}, \frac{x^3y^2}{(xy+z+1)^2}, z\right)$

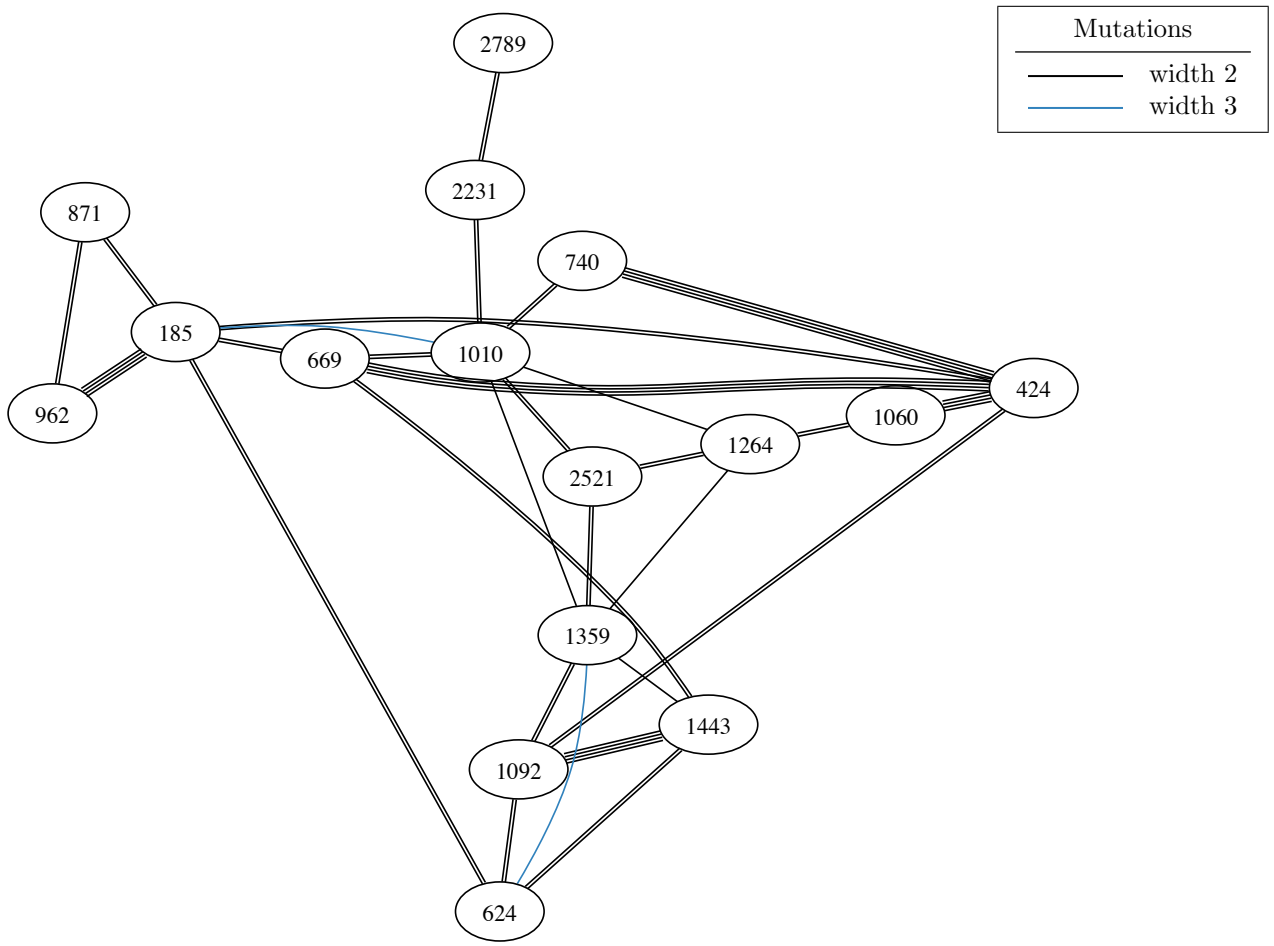

FIGURE 65B. All mutations between Minkowski polynomials in bucket 65

Bucket 66

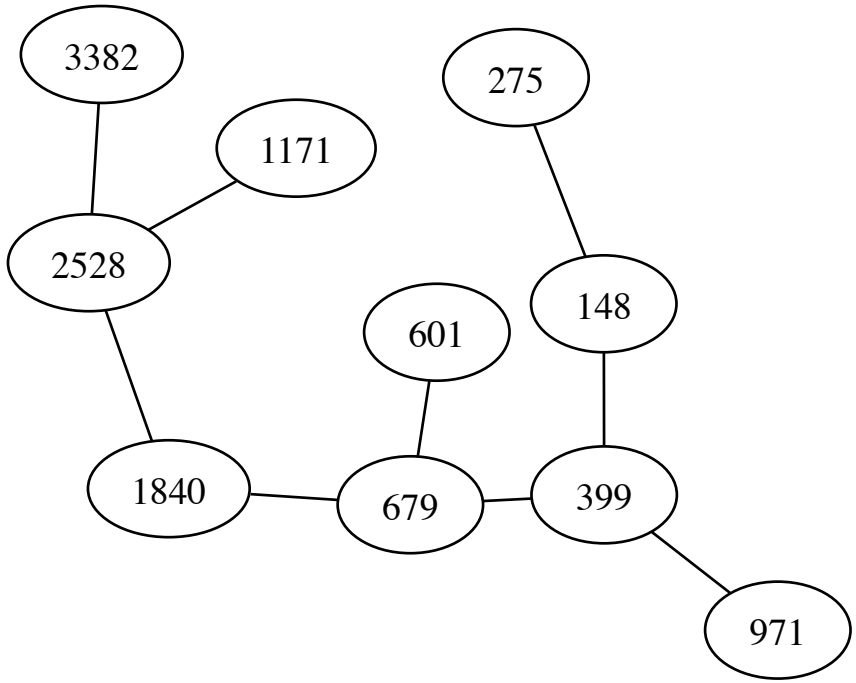

Figure 66a. Selected width-2 mutations between Minkowski polynomials in bucket 66

Table 66. Laurent polynomials and selected mutations for bucket 66.

Node	Laurent polynomial	Mutations from Figure 66a
148	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	275: $\left(\frac{x^2z^2+y(xz+1)^2}{x^2yz}, \frac{x^2z^2+y(xz+1)^2}{x^3yz^2}, y\right)$ 399: $\left(x, \frac{x}{y(x+1)}, \frac{y(x+1)}{xz}\right)$
275	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	148: $\left(\frac{x^2+z(x+y)^2}{x^2yz}, z, \frac{x^3z}{x^2+z(x+y)^2}\right)$
399	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	148: $\left(x, \frac{x}{y(x+1)}, \frac{1}{yz}\right)$ 679: $\left(x, \frac{xy}{xyz+x+1}, \frac{xy^2z}{xyz+x+1}\right)$ 971: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{1}{y}, \frac{x^2yz}{xyz+(y+1)^2}\right)$
601	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	679: $\left(x, y, \frac{z(x+1)}{x}\right)$
679	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	399: $\left(x, \frac{xy+xz+y}{x}, \frac{xz}{y(xy+xz+y)}\right)$ 601: $\left(x, y, \frac{xz}{x+1}\right)$ 1840: $\left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, \frac{x}{xyz+z+1}\right)$
971	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	399: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{1}{y}, \frac{x^2yz}{xyz+(y+1)^2}\right)$
1171	$x+y+z+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2528: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, \frac{xy+z}{x^2yz}\right)$
1840	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{1}{x^3y^2z}$	679: $\left(\frac{xy+yz+1}{y}, \frac{xy^2}{xy+yz+1}, \frac{1}{yz}\right)$ 2528: $\left(x, y, \frac{z(x^2y+(xy+1)^2)}{x^2y^2}\right)$
2528	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z}{x^2y}+\frac{4}{x^2y}+\frac{2z}{x^2y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}+\frac{z}{x^4y^3}$	1171: $\left(\frac{x^2yz+1}{xyz}, \frac{x^2y^2z}{x^2yz+1}, \frac{1}{xz}\right)$ 1840: $\left(x, y, \frac{x^2y^2z}{x^2y+(xy+1)^2}\right)$ 3382: $\left(\frac{(xy+z)(x^2y^2+z(xy+1)^3)}{x^4y^3z}, \frac{x^5y^4z}{(xy+z)(x^2y^2+z(xy+1)^3)}, z\right)$
3382	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{6z}{x^2y}+\frac{5}{x^2y}+\frac{2z}{x^2y^2}+\frac{3z^2}{x^3y^2}+\frac{7z}{x^3y^2}+\frac{1}{x^3y^2}+\frac{3z^2}{x^4y^3}+\frac{2z}{x^4y^3}+\frac{z^2}{x^5y^4}$	2528: $\left(\frac{(xy+z)(x^2y^2+z(xy+1)^3)}{x^4y^3z}, \frac{x^5y^4z}{(xy+z)(x^2y^2+z(xy+1)^3)}, z\right)$

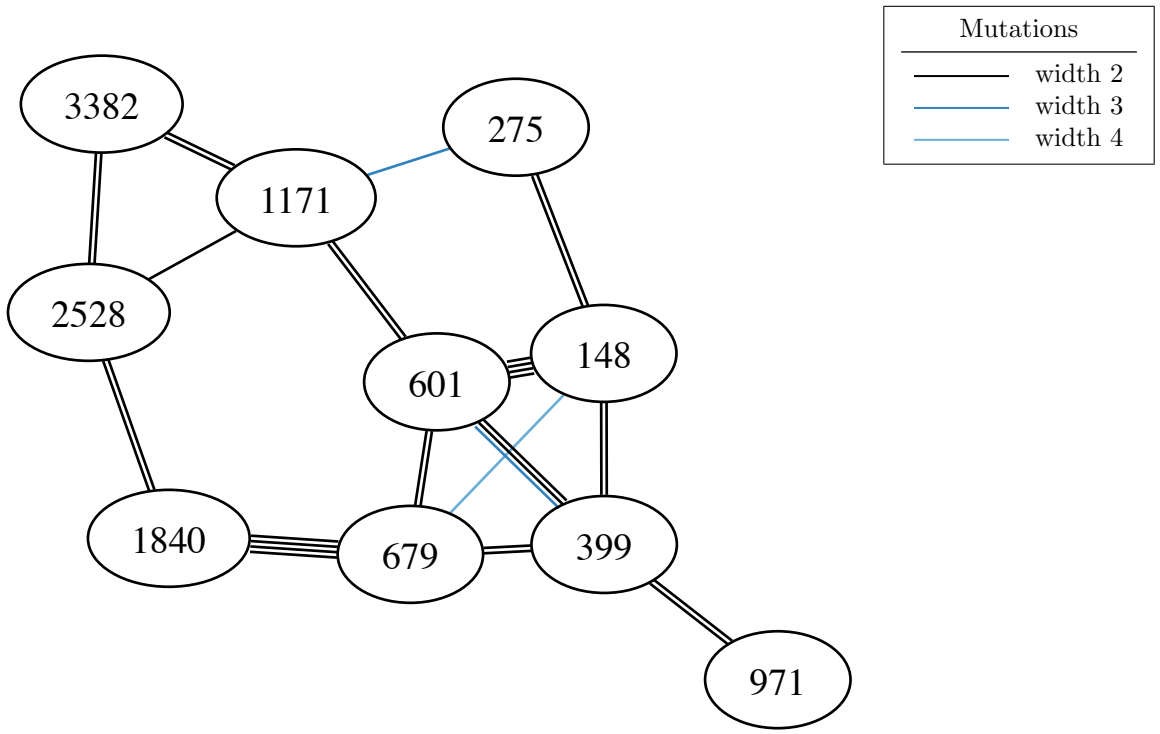

FIGURE 66B. All mutations between Minkowski polynomials in bucket 66

Bucket 67

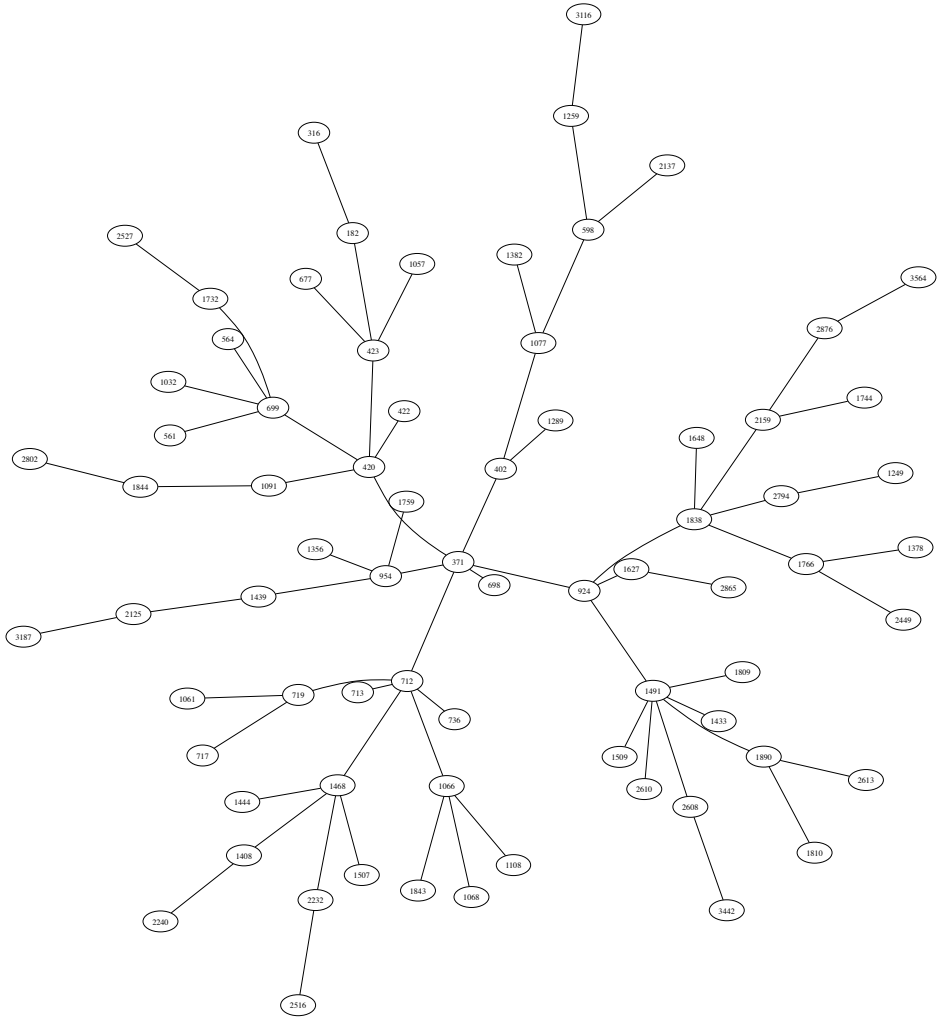

Figure 67a. Selected width-2 mutations between Minkowski polynomials in bucket 67

Table 67. Laurent polynomials and selected mutations for bucket 67.

Node	Laurent polynomial	Mutations from Figure 67a
182	$x+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$316\colon \left(y, \frac{xy}{y+1}, z\right)$ $423\colon \left(\frac{x+1}{y}, x, \frac{x+1}{xyz}\right)$
316	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xy^2}$	$182\colon \left(\frac{y(x+1)}{x}, x, z\right)$
371	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$402\colon \left(\frac{xz+yz+y}{xyz}, \frac{xy}{xz+yz+y}, \frac{x}{y}\right)$ $420\colon \left(\frac{x+z}{xz}, \frac{xy}{x+z}, \frac{x}{z}\right)$ $698\colon \left(x, \frac{y(x+1)}{x}, z\right)$ $712\colon \left(x, y, \frac{xy+1}{xz}\right)$ $924\colon \left(x, \frac{xyz}{xz+x+1}, \frac{xy}{xz+x+1}\right)$ $954\colon \left(\frac{(y+1)(yz+z+1)}{xyz}, \frac{xy}{(y+1)(yz+z+1)}, y\right)$
402	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	$371\colon \left(\frac{xy+z+1}{x}, \frac{xy+z+1}{xz}, \frac{1}{xy}\right)$ $1077\colon \left(\frac{(z+1)^2}{xz}, y, z\right)$ $1289\colon \left(y, \frac{x^2y^2z}{xy^2z+y+1}, \frac{xy}{xy^2z+y+1}\right)$
420	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{z}{xy}$	$371\colon \left(\frac{z+1}{x}, \frac{y(z+1)}{z}, \frac{z+1}{xz}\right)$ $422\colon \left(\frac{xz}{z+1}, \frac{z+1}{y}, z\right)$ $423\colon \left(\frac{xyz}{yz+1}, \frac{yz+1}{y}, \frac{x}{y}\right)$ $699\colon \left(y, x, \frac{xyz}{xy+y+1}\right)$ $1091\colon \left(\frac{xy}{(z+1)(y+1)}, \frac{(z+1)(y+1)}{xz}, y\right)$
422	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	$420\colon \left(\frac{x(z+1)}{z}, \frac{z+1}{y}, z\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
423	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xyz}$	$182\colon \left(y, \frac{y+1}{x}, z\right)$ $420\colon \left(\frac{xy+z}{y}, \frac{xy+z}{yz}, \frac{xy^2}{xy+z}\right)$ $677\colon \left(y, \frac{(y+1)(yz+1)}{xyz}, z\right)$ $1057\colon \left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$
561	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	$699\colon \left(\frac{xz+1}{x}, \frac{y(xz+1)}{xz}, \frac{x^2z}{xz+1}\right)$
564	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	$699\colon \left(\frac{xz+1}{z}, \frac{xyz}{xz+1}, \frac{xz^2}{xz+1}\right)$
598	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$1077\colon \left(x, y, \frac{z(y+1)}{y}\right)$ $1259\colon \left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ $2137\colon \left(\frac{x^3y^2z}{x^2y^2z+xyz+1}, \frac{x^2y^2z+xyz+1}{x^2yz}, z\right)$
677	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$423\colon \left(\frac{(x+1)(xz+1)}{xyz}, x, z\right)$
698	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	$371\colon \left(x, \frac{xy}{x+1}, z\right)$
699	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}$	$420\colon \left(y, x, \frac{z(xy+x+1)}{xy}\right)$ $561\colon \left(\frac{xz+1}{x}, \frac{xyz}{xz+1}, \frac{x^2z}{xz+1}\right)$ $564\colon \left(\frac{x^2z}{xz+1}, \frac{y(xz+1)}{xz}, \frac{xz+1}{x}\right)$ $1032\colon \left(\frac{x^2z}{xz+y}, \frac{xz+y}{xy}, \frac{xz+y}{xyz}\right)$ $1732\colon \left(\frac{x^3yz^2}{(xz+1)(xyz+1)}, \frac{(xz+1)(xyz+1)}{x^2z}, \frac{(xz+1)(xyz+1)}{x^2yz}\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
712	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{x^2z}$	371: $\left(x, y, \frac{xy+1}{xz}\right)$ 713: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 719: $\left(\frac{xz+yz+y}{xyz}, \frac{xy}{xz+yz+y}, \frac{x^2z}{xz+yz+y}\right)$ 736: $\left(\frac{xy+1}{x}, \frac{xy}{z(xy+1)}, \frac{x^2y}{xy+1}\right)$ 1066: $\left(x, \frac{xz}{y(xz+x+1)}, z\right)$ 1468: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, y, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$
713	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}$	712: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$
717	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	719: $\left(x, y+z, \frac{z}{y}\right)$
719	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	712: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2z}, \frac{1}{xy}\right)$ 717: $\left(x, \frac{y}{z+1}, \frac{yz}{z+1}\right)$ 1061: $\left(x, y, \frac{xyz}{xy+x+y}\right)$
736	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	712: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{xz}{y(xz+1)}\right)$
924	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	371: $\left(x, \frac{xy+xz+z}{x}, \frac{y}{z}\right)$ 1491: $\left(y, x, \frac{z(y+1)}{y}\right)$ 1627: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$ 1838: $\left(y, x, \frac{z(y+1)^2}{y^2}\right)$
954	$x+y+z+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	371: $\left(\frac{(z+1)(xy+z+1)}{xz}, z, \frac{1}{xy}\right)$ 1356: $\left(x, y, \frac{y}{z(xy+(y+1)^2)}\right)$ 1439: $(x, y(z+1), z)$ 1759: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$
1032	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	699: $\left(\frac{xy+1}{y}, \frac{xy+1}{xyz}, \frac{y}{z}\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
1057	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$423\colon \left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$
1061	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	$719\colon \left(x, y, \frac{z(xy+x+y)}{xy}\right)$
1066	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	$712\colon \left(x, \frac{xz}{y(xz+x+1)}, z\right)$ $1068\colon \left(\frac{xyz+x+1}{xz}, \frac{1}{x}, \frac{xyz^2}{xyz+x+1}\right)$ $1108\colon \left(\frac{xy+1}{x}, \frac{1}{z}, \frac{x^2y}{xy+1}\right)$ $1843\colon \left(\frac{x^2yz}{xyz+1}, \frac{1}{y}, \frac{xyz+1}{xy}\right)$
1068	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2yz^2}$	$1066\colon \left(\frac{1}{y}, \frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}\right)$
1077	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$402\colon \left(\frac{(z+1)^2}{xz}, y, z\right)$ $598\colon \left(x, y, \frac{yz}{y+1}\right)$ $1382\colon \left(x, y, \frac{xyz}{(y+1)(x+1)}\right)$
1091	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$420\colon \left(\frac{(z+1)(xy+z)}{yz}, z, \frac{z}{xy}\right)$ $1844\colon \left(x, \frac{x^2z}{y(x+1)(xz+1)}, \frac{x}{y(x+1)(xz+1)}\right)$
1108	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2yz}$	$1066\colon \left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{1}{y}\right)$
1249	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	$2794\colon \left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, \frac{z(xy+1)^2}{x^2y^2}\right)$
1259	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	$598\colon \left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$ $3116\colon \left(\frac{x^4y^3z^2}{x^3y^3z^2+(xyz+1)^2}, \frac{x^3y^3z^2+(xyz+1)^2}{x^3y^2z^2}, z\right)$
1289	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$402\colon \left(\frac{xy+xz+z}{x}, x, \frac{y}{z(xy+xz+z)}\right)$
1356	$x+y+z+\frac{z}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	$954\colon \left(x, y, \frac{y}{z(xy+(y+1)^2)}\right)$
1378	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{1}{x^2z}+\frac{y}{x^3z^2}$	$1766\colon \left(x, \frac{x^2yz+x+1}{x^2y^2z}, \frac{x^2yz+x+1}{x^2y}\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
1382	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1077: $\left(x, y, \frac{z(y+1)(x+1)}{xy}\right)$
1408	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1468: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, \frac{1}{xz}\right)$ 2240: $\left(\frac{(xyz+y+1)(xyz+xz+y)}{x^2yz}, \frac{(xyz+y+1)(xyz+xz+y)}{x^3yz^2}, y\right)$
1433	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2}$	1491: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{1}{xz}\right)$
1439	$x+yz+y+z+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	954: $\left(x, \frac{y}{z+1}, z\right)$ 2125: $\left(x, \frac{xz+(z+1)^2}{xy}, \frac{xyz}{xz+(z+1)^2}\right)$
1444	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1468: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$
1468	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	712: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, y, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$ 1408: $\left(x, \frac{x}{y(x+z+1)}, \frac{1}{xz}\right)$ 1444: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 1507: $\left(x, \frac{xz}{y(xz+1)}, z\right)$ 2232: $\left(x, \frac{y(x+1)}{x}, \frac{1}{xz}\right)$
1491	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	924: $\left(y, x, \frac{xz}{x+1}\right)$ 1433: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{x}{z(xy+1)}\right)$ 1509: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, z\right)$ 1809: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$ 1890: $\left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, z\right)$ 2608: $\left(\frac{x^3y^2}{(xy+1)(xy+z+1)}, \frac{(xy+1)(xy+z+1)}{x^2y}, z\right)$ 2610: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{x^2y^2}{(y+z)(xy+1)}, \frac{x^2yz}{(y+z)(xy+1)}\right)$
1507	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1468: $\left(x, \frac{xz}{y(xz+1)}, z\right)$
1509	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	1491: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, z\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
1627	$x+y+z+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	924: $\left(\frac{1+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{1+z(xy+1)^2}, z\right)$ 2865: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, \frac{xy+z}{x^2yz}\right)$
1648	$x+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{2z}{x^3y}+\frac{1}{x^3y^2}+\frac{z}{x^4y^2}$	1838: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{z(xy+1)}{xy}\right)$
1732	$x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	699: $\left(\frac{(xz+1)(xy+1)}{xyz}, \frac{y}{z}, \frac{x^2yz^2}{(xz+1)(xy+1)}\right)$ 2527: $\left(x, \frac{y(xz+1)^2}{x^2z^2}, z\right)$
1744	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{3y^2}{x^2z}+\frac{3y}{x^2z}+\frac{1}{x^2z}+\frac{y^3}{x^3z^2}+\frac{y^2}{x^3z^2}$	2159: $\left(x, \frac{x^2y^2z}{x^2yz+(xyz+1)^2}, \frac{x^2y^3z^2}{x^2yz+(xyz+1)^2}\right)$
1759	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	954: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$
1766	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	1378: $\left(x, \frac{x^2z+xy+y}{x^2yz}, \frac{x^2z^2}{x^2z+xy+y}\right)$ 1838: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{1}{xz}\right)$ 2449: $\left(y, \frac{(xyz+y+1)(xy^2z+y+1)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+y+1)(xy^2z+y+1)}\right)$
1809	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	1491: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$
1810	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1890: $\left(x, y, \frac{1}{z(x+1)}\right)$
1838	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	924: $\left(y, x, \frac{x^2z}{(x+1)^2}\right)$ 1648: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{xyz}{xy+1}\right)$ 1766: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{xy+1}{x^2yz}\right)$ 2159: $\left(\frac{xyz+1}{xz}, \frac{x^2yz}{xyz+1}, \frac{x}{xyz+1}\right)$ 2794: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{x^2y^2}{(y+z)(xy+1)}, \frac{x^2yz}{(y+z)(xy+1)}\right)$
1843	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1066: $\left(\frac{xz+y}{z}, \frac{1}{y}, \frac{xz^2}{xz+y}\right)$
1844	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	1091: $\left(x, \frac{x}{(y+z)(x+1)}, \frac{y}{xz}\right)$ 2802: $\left(\frac{(xy+xz+1)(x^2yz+xz+1)}{x^3yz}, \frac{(xy+xz+1)(x^2yz+xz+1)}{x^4y^2z}, \frac{x^4yz^2}{(xy+xz+1)(x^2yz+xz+1)}\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
1890	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1491: $\left(\frac{xy+z+1}{y}, \frac{xy^2}{xy+z+1}, z\right)$ 1810: $\left(x, y, \frac{1}{z(x+1)}\right)$ 2613: $\left(x, y, \frac{xy}{z(x+1)(xy+1)}\right)$
2125	$x+y+z+\frac{z}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	1439: $\left(x, \frac{xyz+(yz+1)^2}{xy}, yz\right)$ 3187: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}, z\right)$
2137	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	598: $\left(\frac{x^2y^2z+xyz+1}{xy^2z}, \frac{x^2y^3z}{x^2y^2z+xyz+1}, z\right)$
2159	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{2}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	1744: $\left(x, \frac{x^2yz+(xz+y)^2}{x^2z}, \frac{x^2z^2}{y(x^2yz+(xz+y)^2)}\right)$ 1838: $\left(y+z, \frac{xy}{y+z}, \frac{1}{xz}\right)$ 2876: $\left(x, \frac{(x^2yz+1)(x^2yz+(xyz+1)^2)}{x^4y^3z^2}, \frac{x^4y^4z^3}{(x^2yz+1)(x^2yz+(xyz+1)^2)}\right)$
2232	$x+yz+y+z+\frac{1}{y}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	1468: $\left(x, \frac{xy}{x+1}, \frac{1}{xz}\right)$ 2516: $\left(x, \frac{y(xz+x+z)}{x}, \frac{xz}{y(xz+x+z)}\right)$
2240	$x+yz+y+z+\frac{3y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1408: $\left(\frac{(xz+yz+y)(xz+x+yz)}{x^2yz}, z, \frac{x^3z}{(xz+yz+y)(xz+x+yz)}\right)$
2449	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{4}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1766: $\left(\frac{(xyz+x+1)(x^2yz+x+1)}{x^3y^2z}, x, \frac{x^3y^3z^2}{(xyz+x+1)(x^2yz+x+1)}\right)$
2516	$x+yz+y+z+\frac{1}{y}+\frac{3yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	2232: $\left(x, \frac{xy}{xyz+x+yz}, yz\right)$
2527	$x+yz+y+z+\frac{4y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{4y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	1732: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, z\right)$
2608	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	1491: $\left(\frac{(xy+1)(xy+z+1)}{xy^2}, \frac{x^2y^3}{(xy+1)(xy+z+1)}, z\right)$ 3442: $\left(x, y, \frac{x^2y^2}{z(xy+1)(x^2y+xy+1)}\right)$

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Table 67 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 67a
2610	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{3z}{x^2y^2}+\frac{1}{x^3yz}+\frac{2}{x^3y^2}+\frac{z}{x^3y^3}$	1491: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{x^2y^2}{(y+z)(xy+1)}, \frac{x^2yz}{(y+z)(xy+1)}\right)$
2613	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	1890: $\left(x, y, \frac{xy}{z(x+1)(xy+1)}\right)$
2794	$x+y+z+\frac{2z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{3}{x^2y}+\frac{5z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3y^2}+\frac{2z}{x^3y^3}+\frac{z^2}{x^3y^4}$	1249: $\left(\frac{(xy+1)^2}{x^2y}, \frac{x^3y^2}{(xy+1)^2}, \frac{x^2y^2z}{(xy+1)^2}\right)$ 1838: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{x^2y^2}{(y+z)(xy+1)}, \frac{x^2yz}{(y+z)(xy+1)}\right)$
2802	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{2}{x^2z}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^2y^2}+\frac{4}{x^3yz}+\frac{3}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1844: $\left(\frac{(xyz+x+y)(x^2z+xyz+y)}{x^3yz}, \frac{x^4z}{(xyz+x+y)(x^2z+xyz+y)}, \frac{x^4yz^2}{(xyz+x+y)(x^2z+xyz+y)}\right)$
2865	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{2z}{x^2y^2}+\frac{3z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{z}{x^4y^3}$	1627: $\left(\frac{x^2yz+1}{xyz}, \frac{x^2y^2z}{x^2yz+1}, \frac{1}{xz}\right)$
2876	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{4}{x^2y^2z}+\frac{3}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{3}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	2159: $\left(x, \frac{(x^2yz+1)(x^2yz+(xyz+1)^2)}{x^4y^3z^2}, \frac{x^4y^4z^3}{(x^2yz+1)(x^2yz+(xyz+1)^2)}\right)$ 3564: $\left(\frac{(x^2y^2z+xyz+1)(x^3y^3z^2+(xyz+1)^2)}{x^5y^4z^3}, \frac{x^6y^5z^3}{(x^2y^2z+xyz+1)(x^3y^3z^2+(xyz+1)^2)}, z\right)$
3116	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{3}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	1259: $\left(\frac{x^3y^3z^2+(xyz+1)^2}{x^2y^3z^2}, \frac{x^3y^4z^2}{x^3y^3z^2+(xyz+1)^2}, z\right)$
3187	$x+y+z+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z^2}{x^2y}+\frac{6z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{z^3}{x^3y^2}+\frac{3z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{1}{x^3y^2}$	2125: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}, z\right)$
3442	$x+y+z+\frac{z}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{4z}{x^2y}+\frac{4}{x^2y}+\frac{5z}{x^2y^2}+\frac{6z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{2z}{x^3y^3}+\frac{4z}{x^4y^3}+\frac{z}{x^5y^4}$	2608: $\left(x, y, \frac{x^2y^2}{z(xy+1)(x^2y+xy+1)}\right)$
3564	$x+y+z+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^3y^2}+\frac{8}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{4}{x^4y^3z}+\frac{7}{x^4y^3z^2}+\frac{6}{x^5y^4z^2}+\frac{2}{x^5y^4z^3}+\frac{4}{x^6y^5z^3}+\frac{1}{x^7y^6z^4}$	2876: $\left(\frac{(x^2y^2z+xyz+1)(x^3y^3z^2+(xyz+1)^2)}{x^5y^4z^3}, \frac{x^6y^5z^3}{(x^2y^2z+xyz+1)(x^3y^3z^2+(xyz+1)^2)}, z\right)$

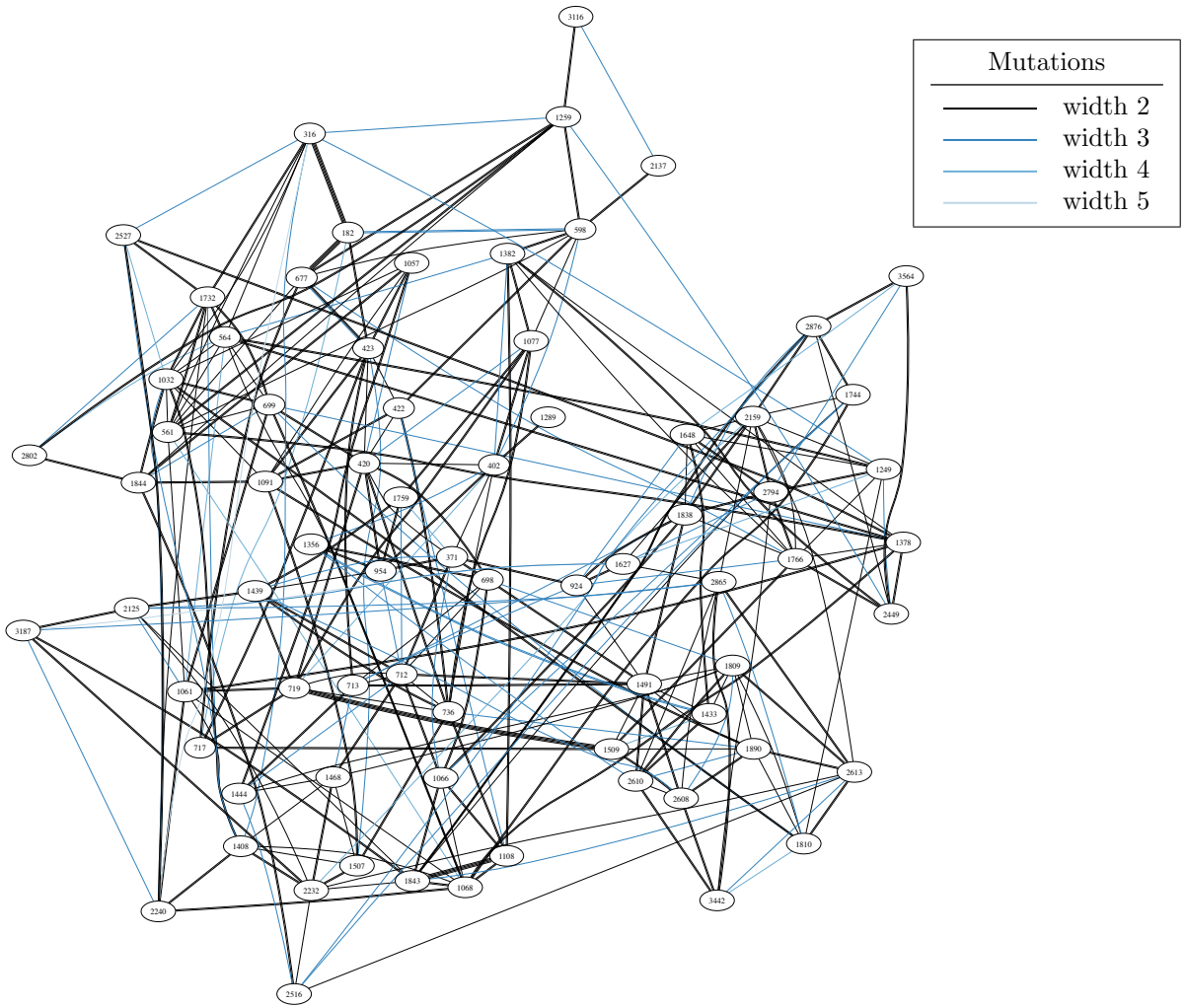

Figure 67b. All mutations between Minkowski polynomials in bucket 67

Bucket 68

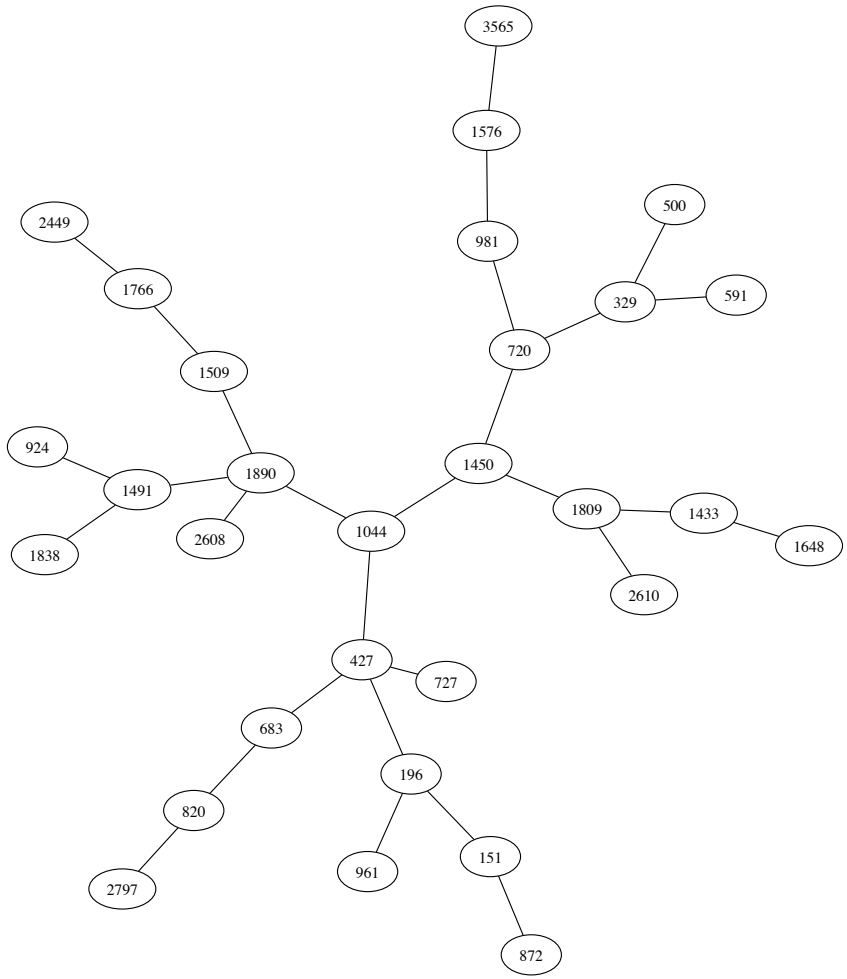

Figure 68a. Selected width-2 mutations between Minkowski polynomials in bucket 68

Table 68. Laurent polynomials and selected mutations for bucket 68.

Node	Laurent polynomial	Mutations from Figure 68a
151	$x+\frac{x}{z}+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	196: $\left(x, \frac{xy}{x+1}, \frac{x}{z}\right)$ 872: $\left(y, \frac{xy^2}{xy^2z+(y+1)^2}, \frac{x^2y^2z}{xy^2z+(y+1)^2}\right)$
196	$x+\frac{x}{z}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	151: $\left(x, \frac{y(x+1)}{x}, \frac{x}{z}\right)$ 427: $\left(x+y, \frac{y}{x}, z\right)$ 961: $\left(y, \frac{xyz+xz+y^2}{x^2yz}, \frac{xyz+xz+y^2}{xy}\right)$
329	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	500: $\left(\frac{(xz+1)(xyz+xz+y)}{x^2yz}, \frac{(xz+1)(xyz+xz+y)}{x^3yz^2}, y\right)$ 591: $\left(\frac{x^2y^2z+(xyz+1)^2}{x^2yz}, \frac{x^2y^2z+(xyz+1)^2}{x^3y^2z^2}, \frac{x^3y^2z}{x^2y^2z+(xyz+1)^2}\right)$ 720: $\left(x, \frac{x}{y(x+1)}, z\right)$
427	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}$	196: $\left(\frac{x}{y+1}, \frac{xy}{y+1}, \frac{x}{z}\right)$ 683: $\left(\frac{xz}{(z+1)(y+1)}, \frac{xyz}{(z+1)(y+1)}, z\right)$ 727: $\left(\frac{xy}{xyz+y+1}, \frac{x}{xyz+y+1}, \frac{x^2yz}{xyz+y+1}\right)$ 1044: $\left(\frac{1}{y}, \frac{xz}{yz+z+1}, \frac{x}{yz+z+1}\right)$
500	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	329: $\left(\frac{(x+y)(xz+x+yz)}{x^2yz}, z, \frac{x^3z}{(x+y)(xz+x+yz)}\right)$
591	$x+yz+y+z+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2yz}+\frac{1}{x^3y^2z^2}$	329: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^3yz}{x^2yz+(x+y)^2}, \frac{1}{yz}\right)$
683	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	427: $\left(\frac{(z+1)(x+y)}{z}, \frac{y}{x}, z\right)$ 820: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$
720	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	329: $\left(x, \frac{x}{y(x+1)}, z\right)$ 981: $\left(x, \frac{xz}{y(z+1)(x+1)}, z\right)$ 1450: $\left(\frac{y+z(y+1)^2}{xyz}, \frac{1}{y}, \frac{xy}{y+z(y+1)^2}\right)$
727	$x+yz+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	427: $\left(x+y+z, \frac{x}{y}, \frac{z}{x(x+y+z)}\right)$

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Table 68 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 68a
820	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	683: $\left(x, \frac{xyz}{xz+z+1}, z\right)$ 2797: $\left(\frac{x^4y^2z}{x^3y^2z+(xy+1)^2}, \frac{x^3y^2}{x^3y^2z+(xy+1)^2}, \frac{x^3y^2z+(xy+1)^2}{x^3yz}\right)$
872	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	151: $\left(\frac{x^2z+y(x+1)^2}{x^2}, x, \frac{x^2z}{y(x^2z+y(x+1)^2)}\right)$
924	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	1491: $\left(y, x, \frac{z(y+1)}{y}\right)$
961	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{1}{x^2z}$	196: $\left(\frac{x^2y+xz+z}{xyz}, x, \frac{xz^2}{x^2y+xz+z}\right)$
981	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	720: $\left(x, \frac{xz}{y(z+1)(x+1)}, z\right)$ 1576: $\left(\frac{(xz+1)(xyz+y+1)}{x^2yz}, \frac{(xz+1)(xyz+y+1)}{x^3yz^2}, y\right)$
1044	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	427: $\left(\frac{xy+xz+y}{x}, \frac{1}{x}, \frac{y}{z}\right)$ 1450: $\left(x, y, \frac{y}{z(xy+y+1)}\right)$ 1890: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
1433	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2}$	1648: $\left(x, y, \frac{x^2}{z(x^2y+xy+1)}\right)$ 1809: $\left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{x^3y^2z}{y+z(xy+1)^2}, \frac{1}{xz}\right)$
1450	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	720: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{1}{y}, \frac{1}{xz}\right)$ 1044: $\left(x, y, \frac{y}{z(xy+y+1)}\right)$ 1809: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$
1491	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	924: $\left(y, x, \frac{xz}{x+1}\right)$ 1838: $\left(x, y, \frac{y^2}{z(y+1)(xy+1)}\right)$ 1890: $\left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, z\right)$
1509	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	1766: $\left(x, y, \frac{xy+x+1}{x^2yz}\right)$ 1890: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$

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Table 68 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 68a
1576	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	981: $\left(\frac{(x+y)(xz+yz+y)}{x^2yz}, z, \frac{x^3z}{(x+y)(xz+yz+y)}\right)$ 3565: $\left(\frac{x^5y^2z^2}{xz+(x^2yz+1)^2}, \frac{xz+(x^2yz+1)^2}{x^4yz^2}, \frac{xz+(x^2yz+1)^2}{x^4y^2z}\right)$
1648	$x+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{2z}{x^3y}+\frac{1}{x^3y^2}+\frac{z}{x^4y^2}$	1433: $\left(x, y, \frac{x^2}{z(x^2y+xy+1)}\right)$
1766	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	1509: $\left(x, y, \frac{xy+x+1}{x^2yz}\right)$ 2449: $\left(y, \frac{(xyz+1)(xy^2z+(y+1)^2)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+1)(xy^2z+(y+1)^2)}\right)$
1809	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	1433: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, \frac{x^2y}{z(xyz+(xy+1)^2)}\right)$ 1450: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$ 2610: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{z(xy+1)}{xy}\right)$
1838	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	1491: $\left(x, y, \frac{y^2}{z(y+1)(xy+1)}\right)$
1890	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1044: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ 1491: $\left(\frac{xy+z+1}{y}, \frac{xy^2}{xy+z+1}, z\right)$ 1509: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$ 2608: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}, z\right)$
2449	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{5}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1766: $\left(\frac{(xyz+1)(x^2yz+(x+1)^2)}{x^3y^2z}, x, \frac{x^3y^3z^2}{(xyz+1)(x^2yz+(x+1)^2)}\right)$
2608	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	1890: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}, z\right)$
2610	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{4}{x^2y}+\frac{3z}{x^2y^2}+\frac{1}{x^3yz}+\frac{2}{x^3y^2}+\frac{z}{x^3y^3}$	1809: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{xyz}{xy+1}\right)$
2797	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{5}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{5}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	820: $\left(\frac{x^3z^2+y(xz+1)^2}{x^2z^2}, \frac{x^3z^3}{x^3z^2+y(xz+1)^2}, \frac{x^3z^2}{y(x^3z^2+y(xz+1)^2)}\right)$

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Table 68 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 68a
3565	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{5}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{7}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2}+\frac{7}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{6}{x^5y^2z^2}+\frac{4}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	1576: $\left(\frac{xz+(x^2yz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{xz+(x^2yz+1)^2}, \frac{x^4y^2z^3}{xz+(x^2yz+1)^2}\right)$

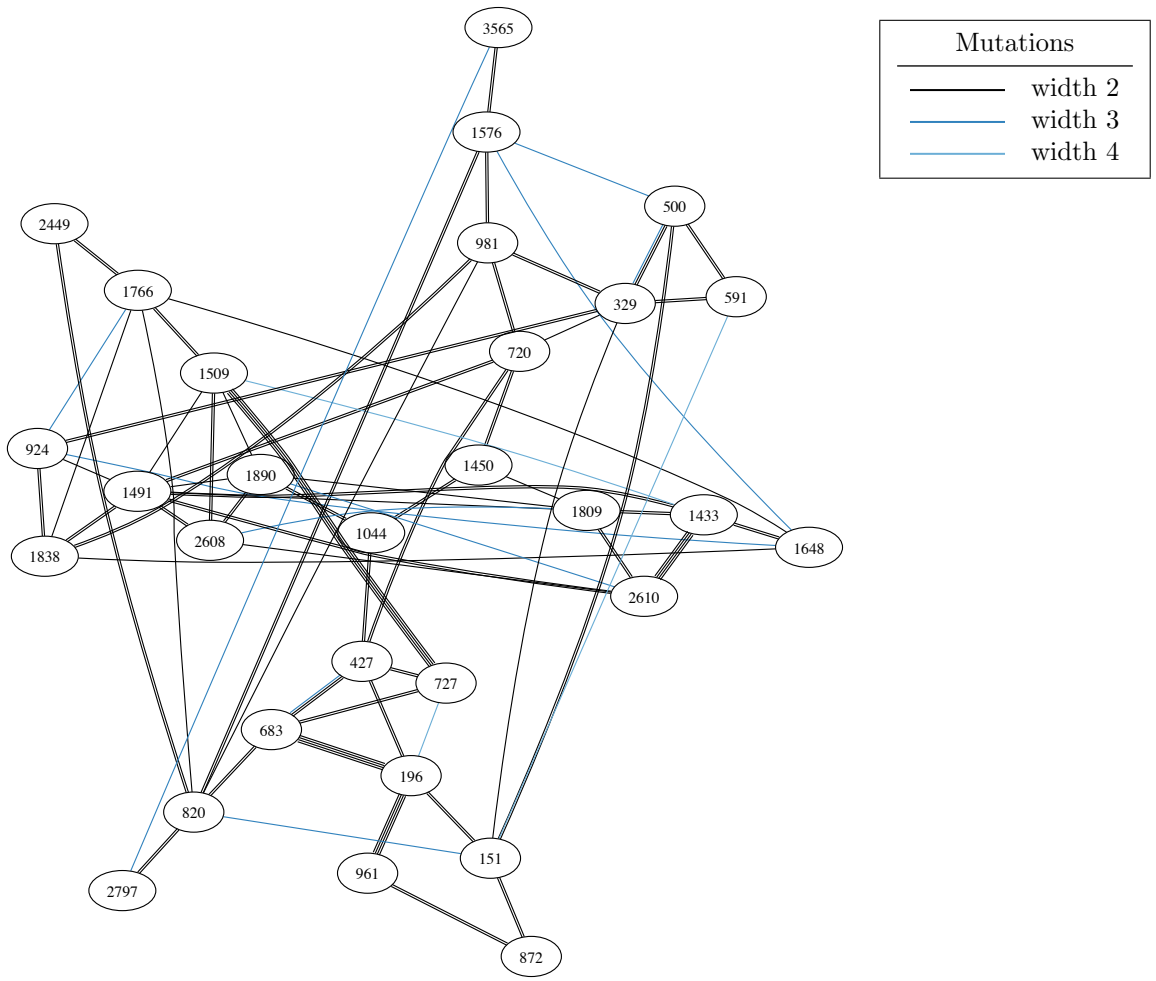

FIGURE 68B. All mutations between Minkowski polynomials in bucket 68

Bucket 69

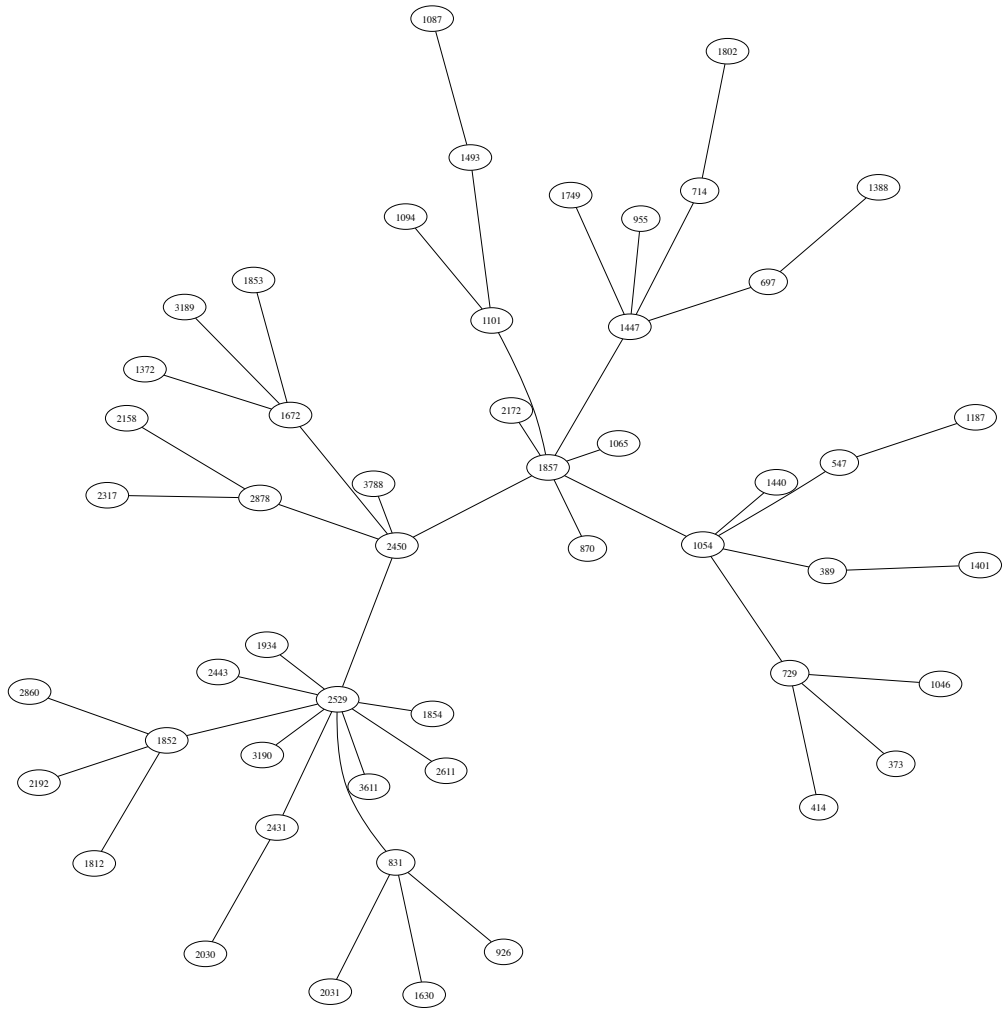

Figure 69a. Selected width-2 mutations between Minkowski polynomials in bucket 69

Table 69. Laurent polynomials and selected mutations for bucket 69.

Node	Laurent polynomial	Mutations from Figure 69a
373	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	729: $\left(y+z, x, \frac{y}{z}\right)$
389	$xy+x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	1054: $\left(\frac{(yz+1)^2}{xyz}, y, \frac{x}{(yz+1)^2}\right)$ 1401: $\left(y, \frac{yz+1}{xyz}, \frac{x}{yz+1}\right)$
414	$xy+x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}+\frac{z}{xy}$	729: $\left(y, \frac{y+z}{xy}, z\right)$
547	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}$	1054: $(x, y, z(y+1))$ 1187: $\left(x, \frac{xyz}{xz+(z+1)^2}, z\right)$
697	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1388: $\left(x, \frac{xyz}{xz+x+1}, \frac{xy}{xz+x+1}\right)$ 1447: $\left(\frac{xy}{y+z}, \frac{y+z}{xz}, y\right)$
714	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	1447: $\left(\frac{(y+z)(yz+y+z)}{xyz}, \frac{(y+z)(yz+y+z)}{xy^2z}, \frac{xy^2}{(y+z)(yz+y+z)}\right)$ 1802: $\left(y, \frac{xy^2}{y^2+yz+z}, \frac{y^2+yz+z}{xy^2z}\right)$
729	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}$	373: $\left(y, \frac{xz}{z+1}, \frac{x}{z+1}\right)$ 414: $\left(\frac{x+z}{xy}, x, z\right)$ 1046: $\left(y, \frac{xyz}{(z+1)(y+1)}, \frac{xy}{(z+1)(y+1)}\right)$ 1054: $\left(\frac{(y+1)(yz+1)}{xyz}, y, \frac{(y+1)(yz+1)}{x}\right)$
831	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	926: $\left(\frac{x^2+xz+yz}{x^2z}, \frac{x^2+xz+yz}{x^2y}, \frac{x^3}{x^2+xz+yz}\right)$ 1630: $\left(x, \frac{x^2y^3z^2}{yz+(xyz+1)^2}, \frac{yz+(xyz+1)^2}{x^2y^2z}\right)$ 2031: $\left(\frac{(xyz+y+z)(x^2yz+xz+1)}{x^3yz^2}, \frac{(xyz+y+z)(x^2yz+xz+1)}{x^3y^2z}, \frac{x^4y^2z^2}{(xyz+y+z)(x^2yz+xz+1)}\right)$ 2529: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
870	$x+y+z+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1857: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$
926	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	831: $\left(\frac{xyz^2+yz+1}{xyz}, \frac{xyz^2+yz+1}{xy^2z^2}, \frac{xyz^2+yz+1}{x^2yz^2}\right)$

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Table 69 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 69a
955	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1447: $\left(x, y, \frac{z(y+1)}{y}\right)$
1046	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	729: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{y}{z}\right)$
1054	$x+yz+y+z+\frac{1}{y}+\frac{y^2z}{x}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	389: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{1}{xyz}\right)$ 547: $\left(x, y, \frac{z}{y+1}\right)$ 729: $\left(\frac{(y+1)(x+z)}{xz}, y, \frac{z}{xy}\right)$ 1440: $\left(x, \frac{xyz}{xz+(z+1)^2}, \frac{xz+(z+1)^2}{xy}\right)$ 1857: $\left(\frac{(z+1)(xyz+z+1)}{xz}, \frac{(z+1)(xyz+z+1)}{x^2yz}, \frac{x^2yz^2}{(z+1)(xyz+z+1)}\right)$
1065	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1857: $\left(\frac{x}{z+1}, \frac{xz}{z+1}, y(z+1)\right)$
1087	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1493: $\left(x, z, \frac{x+1}{xy}\right)$
1094	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1101: $\left(x, y, \frac{y}{z(y+1)}\right)$
1101	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1094: $\left(x, y, \frac{y}{z(y+1)}\right)$ 1493: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, z\right)$ 1857: $\left(\frac{(z+1)(xy+1)}{x}, \frac{x^2y}{(z+1)(xy+1)}, \frac{x^2yz}{(z+1)(xy+1)}\right)$
1187	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	547: $\left(x, \frac{y(xz+(z+1)^2)}{xz}, z\right)$
1372	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	1672: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, \frac{y(xz+1)}{xz}\right)$
1388	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	697: $\left(x, \frac{xy+xz+z}{x}, \frac{y}{z}\right)$
1401	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	389: $\left(\frac{yz+1}{y}, x, \frac{1}{xyz}\right)$
1440	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1054: $\left(x, \frac{xyz+(yz+1)^2}{xz}, yz\right)$

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Table 69 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 69a
1447	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	697: $\left(\frac{xy+1}{y}, z, \frac{z}{xy}\right)$ 714: $\left(\frac{(xz+1)(xyz+x+y)}{x^2yz}, \frac{x}{y}, \frac{1}{yz}\right)$ 955: $\left(x, y, \frac{yz}{y+1}\right)$ 1749: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$ 1857: $\left(x, \frac{z+1}{xyz}, \frac{z+1}{xy}\right)$
1493	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1087: $\left(x, \frac{x+1}{xz}, y\right)$ 1101: $\left(\frac{xy+z}{y}, \frac{xy^2}{xy+z}, z\right)$
1630	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	831: $\left(x, \frac{yz+(xyz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{yz+(xyz+1)^2}\right)$
1672	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	1372: $\left(x+y, \frac{xz}{x+y}, \frac{x}{y(x+y)}\right)$ 1853: $\left(\frac{xy+xz+yz}{xyz}, \frac{x^2z}{xy+xz+yz}, \frac{x^2y}{xy+xz+yz}\right)$ 2450: $\left(x, z, \frac{xyz}{xz+1}\right)$ 3189: $\left(\frac{(xz+1)(xy+1)(xy+xz+1)}{x^3yz}, \frac{x^4yz^2}{(xz+1)(xy+1)(xy+xz+1)}, \frac{x^4y^2z}{(xz+1)(xy+1)(xy+xz+1)}\right)$
1749	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1447: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
1802	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	714: $\left(\frac{x^2yz+x+1}{x^2z}, x, \frac{1}{yz}\right)$
1812	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1852: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$
1852	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{1}{x^2z}+\frac{y}{x^3z^2}$	1812: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 2192: $\left(x, \frac{x^2yz+x+1}{x^2y^2z}, \frac{x^2yz+x+1}{x^2y}\right)$ 2529: $\left(\frac{(xz+1)^2(xyz+1)}{x^3yz^2}, \frac{1}{y}, \frac{x^4yz^3}{(xz+1)^2(xyz+1)}\right)$ 2860: $\left(y, \frac{xy}{xyz+y+1}, \frac{x^2yz}{xyz+y+1}\right)$
1853	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	1672: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{xy+xz+1}{x^2z}\right)$
1854	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2529: $\left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$

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Table 69 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 69a
1857	$x+yz+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	870: $\left(x, \frac{(z+1)^2}{xyz}, z\right)$ 1054: $\left(\frac{(yz+1)(xz+yz+1)}{xyz}, \frac{x^2z}{(yz+1)(xz+yz+1)}, yz\right)$ 1065: $\left(x+y, \frac{xz}{x+y}, \frac{y}{x}\right)$ 1101: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{x^2y^2}{(y+z)(xy+1)}, \frac{z}{y}\right)$ 1447: $\left(x, \frac{y+z}{xyz}, \frac{z}{y}\right)$ 2172: $\left(x, \frac{(z+1)^2(x+1)}{x^2yz}, z\right)$ 2450: $\left(x, z, \frac{x^2yz}{(xz+1)(xz+x+1)}\right)$
1934	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	2529: $\left(\frac{x^3yz^2}{(xz+1)(xyz+1)}, \frac{(xz+1)(xyz+1)}{x^2yz}, y\right)$
2030	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2431: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{xyz}{xy+1}\right)$
2031	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	831: $\left(\frac{(xyz+x+y)(xyz^2+yz+1)}{x^2y^2z^2}, \frac{x^3y^2z^3}{(xyz+x+y)(xyz^2+yz+1)}, \frac{x^2y^3z^3}{(xyz+x+y)(xyz^2+yz+1)}\right)$
2158	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	2878: $\left(x, \frac{x^4z^2}{y(x^2z+xz+1)^2}, z\right)$
2172	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	1857: $\left(x, \frac{(z+1)^2(x+1)}{x^2yz}, z\right)$
2192	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	1852: $\left(x, \frac{x^2z+xy+y}{x^2yz}, \frac{x^2z^2}{x^2z+xy+y}\right)$
2317	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	2878: $\left(x, \frac{x^3z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$
2431	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{2}{x^3y^2z}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2030: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{z(xy+1)}{xy}\right)$ 2529: $\left(x, \frac{x^2yz+1}{x^2z}, \frac{x^2yz^2}{x^2yz+1}\right)$
2443	$x+y+z+\frac{1}{y}+\frac{2y^2}{xz}+\frac{4y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{6y^2}{x^2z}+\frac{4y}{x^2z}+\frac{1}{x^2z}+\frac{4y^3}{x^3z^2}+\frac{2y^2}{x^3z^2}+\frac{y^4}{x^4z^3}$	2529: $\left(x, \frac{x^2yz^2}{(xyz+1)^2}, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$

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Table 69 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 69a
2450	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	1672: $\left(x, \frac{z(xy+1)}{xy}, y\right)$ 1857: $\left(x, \frac{z(xy+1)(xy+x+1)}{x^2y}, y\right)$ 2529: $\left(\frac{x^2yz+xz+1}{xyz}, \frac{x^2y^2z}{x^2yz+xz+1}, \frac{x^2yz^2}{x^2yz+xz+1}\right)$ 2878: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$ 3788: $\left(\frac{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{x^5y^2z^2}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}, \frac{x^5yz^3}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}\right)$
2529	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{2}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	831: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$ 1852: $\left(\frac{(xz+1)^2(xz+y)}{x^3z^2}, \frac{1}{y}, \frac{x^4z^3}{(xz+1)^2(xz+y)}\right)$ 1854: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$ 1934: $\left(\frac{(xy+1)(xyz+1)}{xy^2z}, z, \frac{x^2y^3z}{(xy+1)(xyz+1)}\right)$ 2431: $\left(x, \frac{x^2y^2z}{x^2yz+1}, \frac{x^2yz+1}{x^2y}\right)$ 2443: $\left(x, \frac{x^2z^2}{y(xz+y)^2}, \frac{(xz+y)^2}{x^2z}\right)$ 2450: $\left(\frac{x^3yz}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2z}, \frac{x^2yz+xz+1}{x^2y}\right)$ 2611: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$ 3190: $\left(x, \frac{x^3y^3z^2}{(xyz+1)(x^2yz+1)}, \frac{(xyz+1)(x^2yz+1)}{x^3y^2z}\right)$ 3611: $\left(x, \frac{x^2yz+(xyz+1)^2}{x^2y^2z}, \frac{x^2y^3z^2}{x^2yz+(xyz+1)^2}\right)$
2611	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2529: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$
2860	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{4}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1852: $\left(\frac{xy+xz+y}{x}, x, \frac{xz}{y(xy+xz+y)}\right)$

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Table 69 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 69a
2878	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{2}{x^2z}+\frac{3y}{x^3z}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{3y}{x^4z^2}+\frac{y}{x^5z^3}$	2158: $\left(x, \frac{x^4z^2}{y(x^2z+xz+1)^2}, z\right)$ 2317: $\left(x, \frac{x^3z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$ 2450: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^2yz+(xz+1)^2}{x^3yz}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$
3189	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1672: $\left(\frac{(xz+1)(xy+1)(xy+xz+1)}{x^3yz}, \frac{x^4yz^2}{(xz+1)(xy+1)(xy+xz+1)}, \frac{x^4y^2z}{(xz+1)(xy+1)(xy+xz+1)}\right)$
3190	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{4}{x^2y^2z}+\frac{3}{x^3y^2z}+\frac{2}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{3}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	2529: $\left(x, \frac{(xyz+1)(x^2yz+1)}{x^3yz^2}, \frac{x^3y^2z^3}{(xyz+1)(x^2yz+1)}\right)$
3611	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{7}{x^2y^2z}+\frac{1}{x^2y^3z^2}+\frac{4}{x^3y^2z}+\frac{2}{x^3y^2z^2}+\frac{6}{x^3y^3z^2}+\frac{6}{x^4y^3z^2}+\frac{2}{x^4y^4z^3}+\frac{4}{x^5y^4z^3}+\frac{1}{x^6y^5z^4}$	2529: $\left(x, \frac{x^2yz+(xyz+1)^2}{x^2y^2z}, \frac{x^2y^3z^2}{x^2yz+(xyz+1)^2}\right)$
3788	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{7}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2}+\frac{6}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{6}{x^5y^2z^2}+\frac{4}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	2450: $\left(\frac{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{x^5y^2z^2}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}, \frac{x^5yz^3}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}\right)$

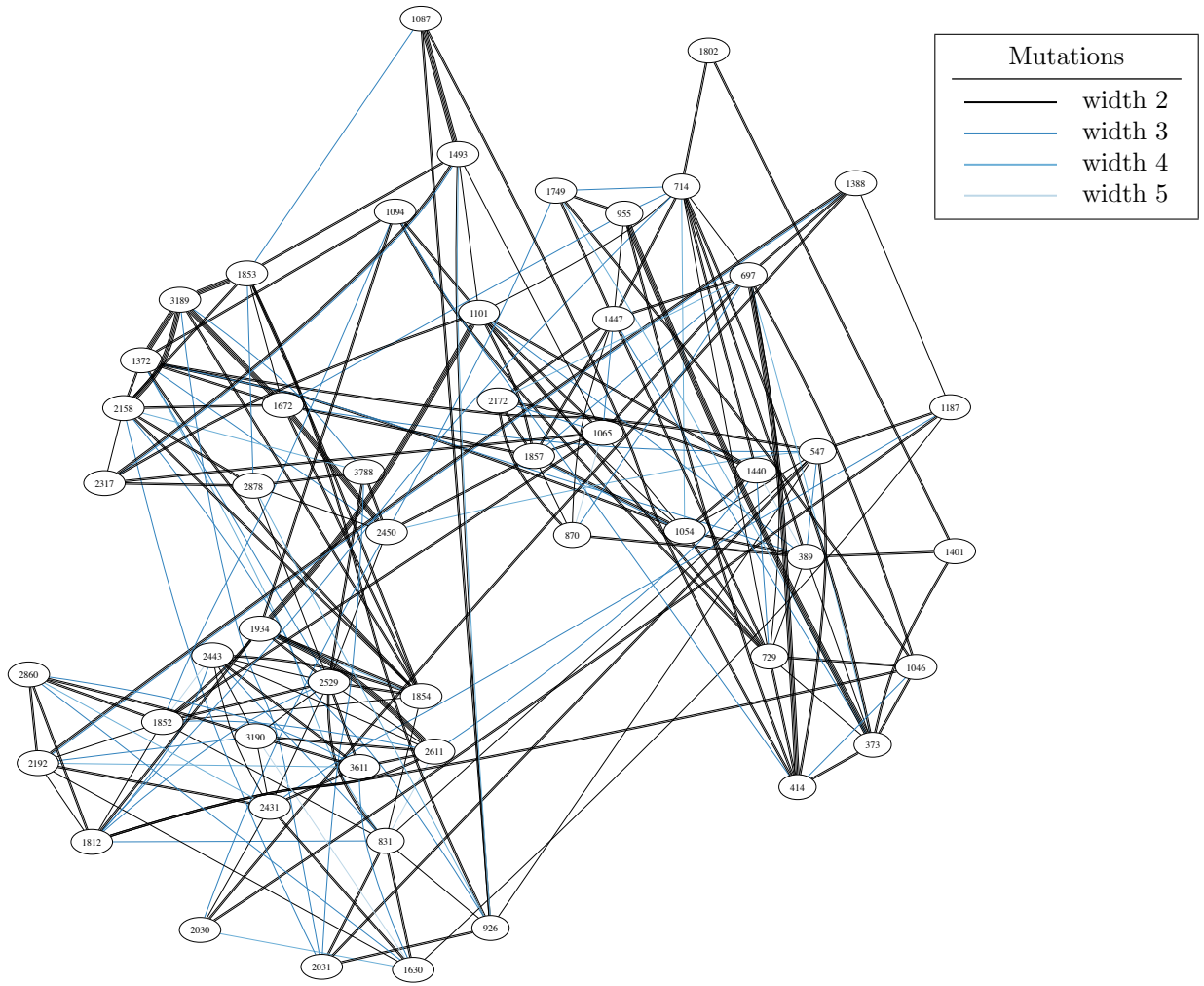

FIGURE 69B. All mutations between Minkowski polynomials in bucket 69

Bucket 70

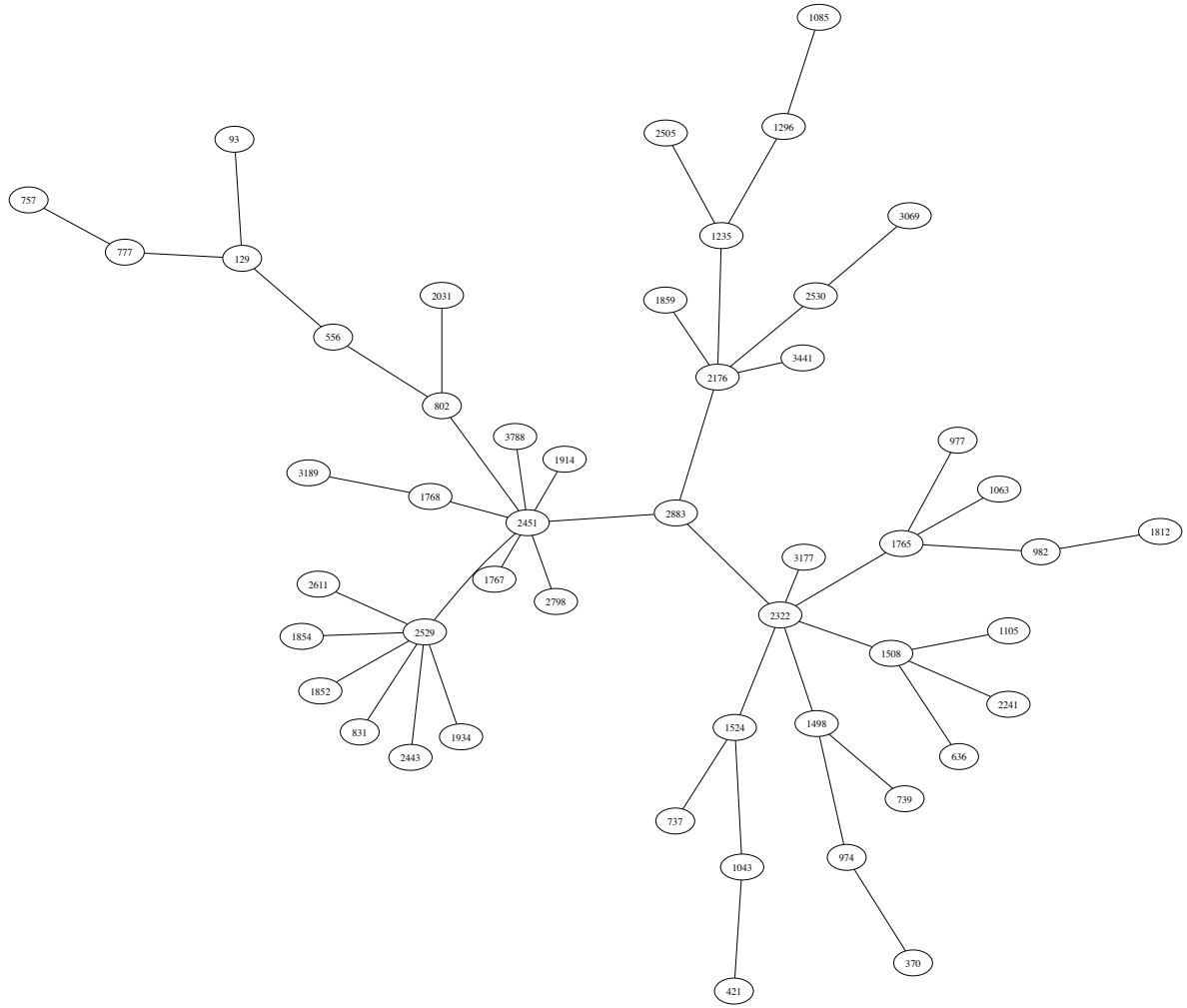

Figure 70a. Selected width-2 mutations between Minkowski polynomials in bucket 70

Table 70. Laurent polynomials and selected mutations for bucket 70.

Node	Laurent polynomial	Mutations from Figure 70a
93	$x+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	$129\colon \left(\frac{(x+y)^2}{xy^2}, z, \frac{y}{xz}\right)$
129	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}$	$93\colon \left(\frac{(yz+1)^2}{xy^2z^2}, \frac{(yz+1)^2}{xyz}, y\right)$ $556\colon \left(\frac{y+z}{xz}, y, z\right)$ $777\colon \left(\frac{x^2y^2}{xy^2+xyz+z}, \frac{x^2yz}{xy^2+xyz+z}, \frac{xz}{xy^2+xyz+z}\right)$
370	$x+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$974\colon \left(\frac{yz+(y+1)^2}{xy}, y, \frac{yz+(y+1)^2}{xy^2z}\right)$
421	$xy+x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}$	$1043\colon \left(\frac{1}{y}, \frac{y+z+1}{xz}, \frac{x}{y+z+1}\right)$
556	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$129\colon \left(\frac{y+z}{xz}, y, z\right)$ $802\colon \left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{x}{yz+1}\right)$
636	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xy^2}$	$1508\colon \left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{x+y}{x^2z}\right)$
737	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	$1524\colon \left(\frac{x}{z+1}, y, \frac{xz}{z+1}\right)$
739	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xyz}$	$1498\colon \left(y, \frac{xy}{y+z+1}, \frac{y+z+1}{xyz}\right)$
757	$xz^2+2xz+x+y+3z+\frac{3}{x}+\frac{z}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	$777\colon \left(x, \frac{(y+z)^2}{x^2y^2z}, \frac{y}{xz}\right)$
777	$x+y+\frac{2y}{z}+z+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{2z}{xy}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	$129\colon \left(x+y+z, \frac{y}{z(x+y+z)}, \frac{y^2}{xz(x+y+z)}\right)$ $757\colon \left(x, \frac{(xz+1)^2}{x^3yz}, \frac{(xz+1)^2}{x^4yz^2}\right)$
802	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	$556\colon \left(y+z, \frac{y+z}{xz}, \frac{xy}{y+z}\right)$ $2031\colon \left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, \frac{y(xz+1)}{xz}\right)$ $2451\colon \left(x, \frac{y(xz+1)^2}{x^2z^2}, z\right)$
831	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	$2529\colon \left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$

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Table 70 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 70a
974	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$370\colon \left(\frac{x+z(y+1)^2}{xyz}, y, \frac{x}{yz}\right)$ $1498\colon \left(x, y, \frac{z(y+1)}{y}\right)$
977	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	$1765\colon \left(y, \frac{(xyz+1)(xyz+xz+1)}{x^3y^2z^2}, \frac{(xyz+1)(xyz+xz+1)}{x^2y^2z}\right)$
982	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$1765\colon \left(y, \frac{x^2yz}{xyz+1}, \frac{xyz+1}{xy}\right)$ $1812\colon \left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
1043	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$421\colon \left(\frac{xyz+x+yz}{xy}, \frac{1}{x}, \frac{1}{yz}\right)$ $1524\colon (x, y, z(y+1))$
1063	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$1765\colon \left(y, \frac{(xz+1)(xyz+1)}{x^2yz}, \frac{x^3yz^2}{(xz+1)(xyz+1)}\right)$
1085	$x+y+z+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1296\colon \left(x, y, \frac{xz}{x+y+1}\right)$
1105	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$1508\colon \left(\frac{xz+y}{xyz}, \frac{x^2z}{xz+y}, \frac{xy}{xz+y}\right)$
1235	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	$1296\colon \left(\frac{xyz+(y+1)^2}{xy}, \frac{xyz+(y+1)^2}{x^2yz}, y\right)$ $2176\colon \left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ $2505\colon \left(\frac{(xyz+1)(xyz+(y+1)^2)}{x^2y^2z}, \frac{(xyz+1)(xyz+(y+1)^2)}{x^3y^2z^2}, y\right)$
1296	$x+y+z+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$1085\colon \left(x, y, \frac{z(x+y+1)}{x}\right)$ $1235\colon \left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{x^2z}{xz+y(z+1)^2}\right)$
1498	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$739\colon \left(\frac{xyz+yz+1}{xz}, x, \frac{1}{yz}\right)$ $974\colon \left(x, y, \frac{yz}{y+1}\right)$ $2322\colon \left(x, \frac{xy}{x+1}, z\right)$

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Table 70 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 70a
1508	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	$636\colon \left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z}{y}\right)$ $1105\colon \left(y+z, \frac{y+z}{xy}, \frac{1}{xz}\right)$ $2241\colon \left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{1}{xyz}\right)$ $2322\colon \left(x, \frac{x^2yz}{(x+1)(xz+z+1)}, \frac{xy}{(x+1)(xz+z+1)}\right)$
1524	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$737\colon \left(x+z, y, \frac{z}{x}\right)$ $1043\colon \left(x, y, \frac{z}{y+1}\right)$ $2322\colon \left(x, \frac{xz+z+1}{xyz}, z\right)$
1765	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	$977\colon \left(\frac{(xz+y)(xz+y+z)}{x^2yz^2}, x, \frac{x^2z^3}{(xz+y)(xz+y+z)}\right)$ $982\colon \left(\frac{xyz+1}{xz}, x, \frac{xyz^2}{xyz+1}\right)$ $1063\colon \left(\frac{(yz+1)(xyz+1)}{xy^2z}, x, \frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$ $2322\colon \left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, \frac{xy+z+1}{x^2yz}\right)$
1767	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	$2451\colon \left(x, \frac{y(x+1)}{x}, z\right)$
1768	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	$2451\colon \left(x, \frac{x^3z}{y(x+1)^2(xz+1)}, z\right)$ $3189\colon \left(\frac{x^3yz}{x^2yz+xz+1}, \frac{x^2z}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2y}\right)$
1812	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$982\colon \left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
1852	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{1}{x^2z}+\frac{y}{x^3z^2}$	$2529\colon \left(\frac{(xz+1)^2(xyz+1)}{x^3yz^2}, \frac{1}{y}, \frac{x^4yz^3}{(xz+1)^2(xyz+1)}\right)$
1854	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	$2529\colon \left(\frac{x^4y^2z^3}{(xz+1)(xyz+1)^2}, y, \frac{(xz+1)(xyz+1)^2}{x^3y^2z^2}\right)$
1859	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$2176\colon \left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$
1914	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$2451\colon \left(x, \frac{y(x+1)(xz+1)}{x^2z}, z\right)$
1934	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	$2529\colon \left(\frac{x^3yz^2}{(xz+1)(xyz+1)}, \frac{(xz+1)(xyz+1)}{x^2yz}, y\right)$

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Table 70 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 70a
2031	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	$802\colon \left(x+y, \frac{xz}{x+y}, \frac{x}{y(x+y)}\right)$
2176	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	$1235\colon \left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$ $1859\colon \left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$ $2530\colon \left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$ $2883\colon \left(x, y, \frac{z(xy+x+1)^2}{x^2y^2}\right)$ $3441\colon \left(\frac{(xyz+1)(xyz+(xy+1)^2)}{x^3y^2z}, \frac{x^4y^3z}{(xyz+1)(xyz+(xy+1)^2)}, z\right)$
2241	$x+yz+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{1}{x^3y^2z}$	$1508\colon \left(x+y, \frac{x}{y(x+y)}, \frac{y}{xz}\right)$
2322	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	$1498\colon \left(x, \frac{y(x+1)}{x}, z\right)$ $1508\colon \left(x, \frac{(x+1)(xy+xz+y)}{x^2}, \frac{y}{xz}\right)$ $1524\colon \left(x, \frac{xz+z+1}{xyz}, z\right)$ $1765\colon \left(\frac{x^2yz+xz+1}{xyz}, \frac{x^2y^2z}{x^2yz+xz+1}, \frac{1}{xz}\right)$ $2883\colon \left(x, y, \frac{xy}{z(x+1)(xy+x+1)}\right)$ $3177\colon \left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}, z\right)$
2443	$x+y+z+\frac{1}{y}+\frac{2y^2}{xz}+\frac{4y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{6y^2}{x^2z}+\frac{4y}{x^2z}+\frac{1}{x^2z}+\frac{4y^3}{x^3z^2}+\frac{2y^2}{x^3z^2}+\frac{y^4}{x^4z^3}$	$2529\colon \left(x, \frac{x^2yz^2}{(xyz+1)^2}, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$

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Table 70 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 70a
2451	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{2y}{x^3z^2}+\frac{y}{x^4z^2}$	802: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, z\right)$
		1767: $\left(x, \frac{xy}{x+1}, z\right)$
		1768: $\left(x, \frac{x^3z}{y(x+1)^2(xz+1)}, z\right)$
		1914: $\left(x, \frac{x^2yz}{(x+1)(xz+1)}, z\right)$
		2529: $\left(\frac{x^2yz+1}{xyz}, \frac{x^2yz+1}{x^2y^2z}, \frac{x^2yz^2}{x^2yz+1}\right)$
		2798: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^2yz+(xz+1)^2}{x^3yz}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$
		2883: $\left(x, \frac{xy+xz+z}{xy^2}, \frac{xy+xz+z}{x^2yz}\right)$
		3788: $\left(\frac{(x^2yz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{(x^2yz+1)(x^2yz+(xz+1)^2)}{x^5y^2z^2}, \frac{x^5yz^3}{(x^2yz+1)(x^2yz+(xz+1)^2)}\right)$
2505	$x+y+z+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1235: $\left(\frac{(xz+y)(xz+y(z+1)^2)}{x^2yz^2}, z, \frac{x^3z^2}{(xz+y)(xz+y(z+1)^2)}\right)$
2529	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{2}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	831: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$
		1852: $\left(\frac{(xz+1)^2(xz+y)}{x^3z^2}, \frac{1}{y}, \frac{x^4z^3}{(xz+1)^2(xz+y)}\right)$
		1854: $\left(\frac{(xz+1)(xyz+1)^2}{x^2y^2z^3}, y, \frac{x^3y^2z^4}{(xz+1)(xyz+1)^2}\right)$
		1934: $\left(\frac{(xy+1)(xyz+1)}{xy^2z}, z, \frac{x^2y^3z}{(xy+1)(xyz+1)}\right)$
		2443: $\left(x, \frac{x^2z^2}{y(xz+y)^2}, \frac{(xz+y)^2}{x^2z}\right)$
		2451: $\left(\frac{x^3z}{x^2z+y}, \frac{x^2z+y}{x^2yz}, \frac{x^2z+y}{x^2}\right)$
		2611: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$
2530	$x+y+z+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{2}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^3z}$	2176: $\left(\frac{xyz+(xy+1)^2}{x^2y}, \frac{x^3y^2}{xyz+(xy+1)^2}, z\right)$
		3069: $\left(x, y, \frac{z(x^2y+xy+1)^2}{x^4y^2}\right)$
2611	$x+y+z+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2529: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$

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Table 70 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 70a
2798	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{2}{x^3yz^2}+\frac{4}{x^4yz^2}+\frac{1}{x^5yz^3}$	2451: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$
2883	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{4z}{xy}+\frac{3}{xy}+\frac{3z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^2}$	2176: $\left(x, y, \frac{x^2y^2z}{(xy+x+1)^2}\right)$ 2322: $\left(x, y, \frac{xy}{z(x+1)(xy+x+1)}\right)$ 2451: $\left(x, \frac{x^2z+xy+y}{x^2yz}, \frac{x^2z+xy+y}{x^3z^2}\right)$
3069	$x+y+z+\frac{1}{yz}+\frac{3z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{3z}{x^2}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{z}{x^3}+\frac{6z}{x^3y}+\frac{2}{x^3y^2}+\frac{3z}{x^4y}+\frac{3z}{x^4y^2}+\frac{3z}{x^5y^2}+\frac{z}{x^6y^3}$	2530: $\left(x, y, \frac{x^4y^2z}{(x^2y+xy+1)^2}\right)$
3177	$x+y+z+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{3}{x^3y^2}+\frac{1}{x^3y^2z}$	2322: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}, z\right)$
3189	$x+y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{5}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1768: $\left(\frac{x^2z+xyz+y}{xz}, \frac{x^2z^2}{x^2z+xyz+y}, \frac{x^2z}{y(x^2z+xyz+y)}\right)$
3441	$x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2}+\frac{5}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{3}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	2176: $\left(\frac{(xyz+1)(xyz+(xy+1)^2)}{x^3y^2z}, \frac{x^4y^3z}{(xyz+1)(xyz+(xy+1)^2)}, z\right)$
3788	$x+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{4}{x^2z}+\frac{5}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{9}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2}+\frac{7}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{6}{x^5y^2z^2}+\frac{4}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	2451: $\left(\frac{(x^2z+y)(x^2z+y(xz+1)^2)}{x^4yz^2}, \frac{x^5z^2}{(x^2z+y)(x^2z+y(xz+1)^2)}, \frac{x^5yz^3}{(x^2z+y)(x^2z+y(xz+1)^2)}\right)$

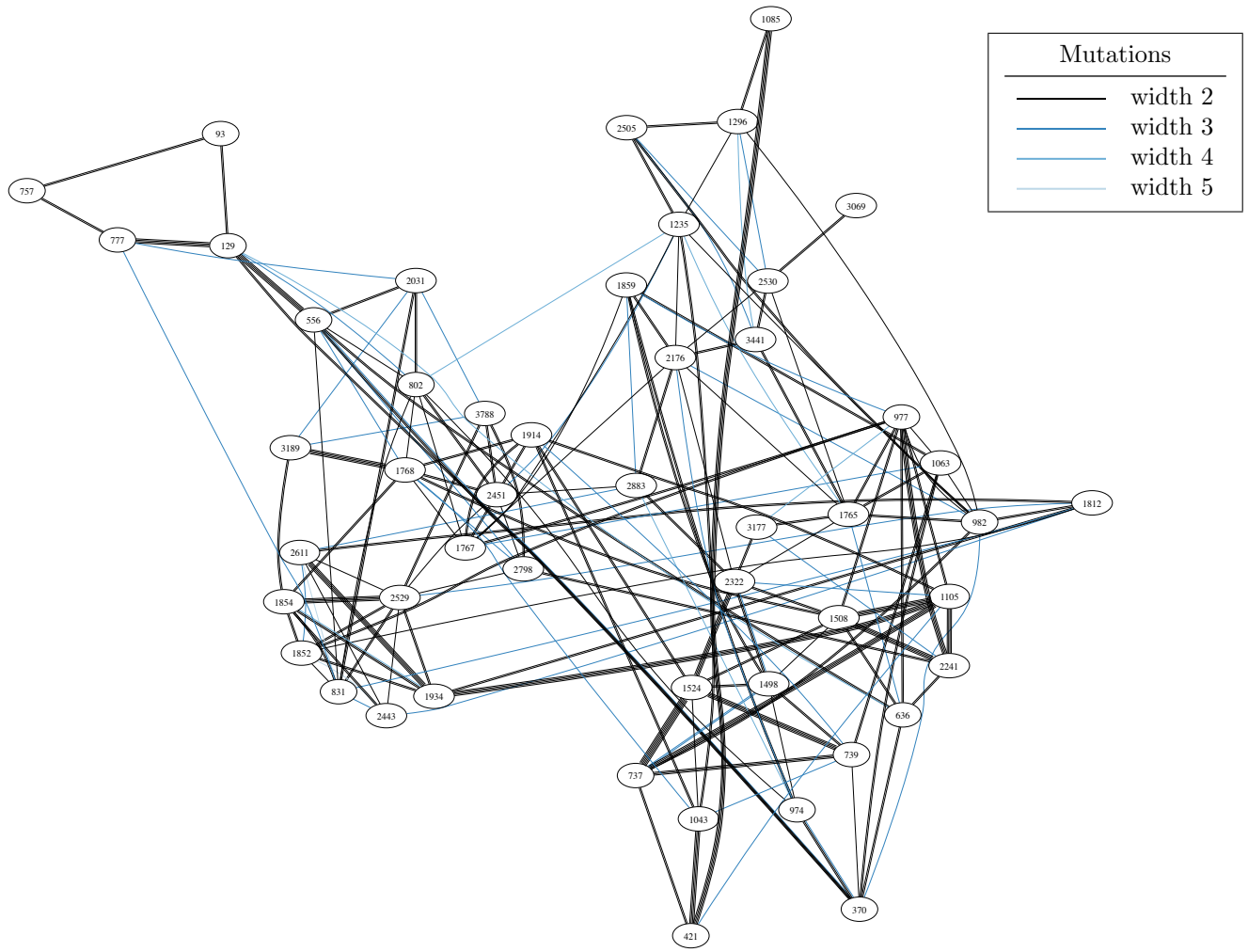

Figure 70b. All mutations between Minkowski polynomials in bucket 70

Bucket 71

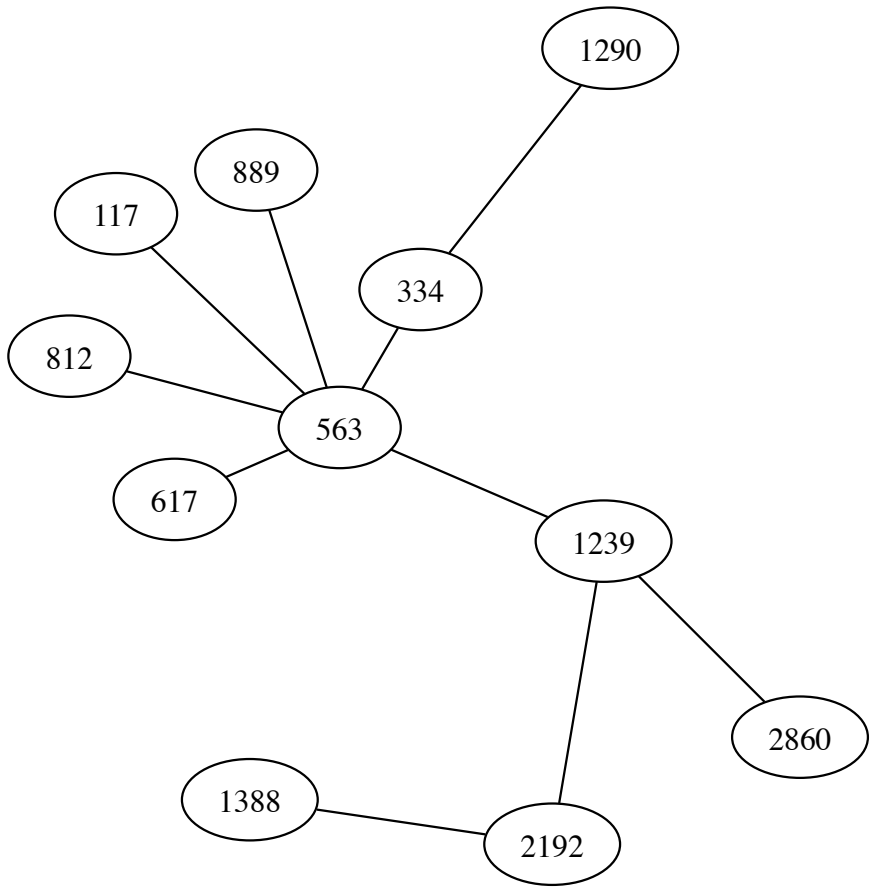

Figure 71a. Selected width-2 mutations between Minkowski polynomials in bucket 71

Table 71. Laurent polynomials and selected mutations for bucket 71.

Node	Laurent polynomial	Mutations from Figure 71a
117	$x+\frac{x}{y}+y+z+\frac{3}{x}+\frac{2}{xz}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	563: $\left(\frac{(x+y)^2}{x^2y}, z, \frac{x^3}{(x+y)^2}\right)$
334	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	563: $\left(\frac{x+y}{xy}, \frac{x+y}{x^2}, z\right)$ 1290: $\left(y, \frac{xy^2}{xy^2z+(y+1)^2}, \frac{x^2y^2z}{xy^2z+(y+1)^2}\right)$
563	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	117: $\left(\frac{(xz+1)^2}{x^2z}, \frac{(xz+1)^2}{x^3z^2}, y\right)$ 334: $\left(\frac{x+y}{xy}, \frac{x+y}{x^2}, z\right)$ 617: $\left(x, y, \frac{z(x+y)}{x}\right)$ 812: $\left(\frac{(y+1)(xz+1)^2}{x^2yz}, \frac{(y+1)(xz+1)^2}{x^3yz^2}, y\right)$ 889: $\left(\frac{xy^2z+(y+z)^2}{xyz}, \frac{xy^2z+(y+z)^2}{xy^2}, \frac{x^2y^2z}{xy^2z+(y+z)^2}\right)$ 1239: $\left(x, \frac{x^2z}{y(1+z(x+1)^2)}, z\right)$
617	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	563: $\left(x, y, \frac{xz}{x+y}\right)$
812	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	563: $\left(\frac{(z+1)(x+y)^2}{x^2yz}, z, \frac{x^3z}{(z+1)(x+y)^2}\right)$
889	$x+y+z+\frac{2z}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	563: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^3yz}{x^2yz+(x+y)^2}, \frac{x^2y^2z}{x^2yz+(x+y)^2}\right)$
1239	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	563: $\left(x, \frac{x^2z}{y(1+z(x+1)^2)}, z\right)$ 2192: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 2860: $\left(y, \frac{(xyz+1)^2}{x^3y^2z^2}, \frac{(xyz+1)^2}{x^2y^2z}\right)$
1290	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	334: $\left(\frac{x^2z+y(x+1)^2}{x^2}, x, \frac{x^2z}{y(x^2z+y(x+1)^2)}\right)$
1388	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	2192: $\left(x, y, \frac{xy+(x+1)^2}{x^2yz}\right)$
2192	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	1239: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$ 1388: $\left(x, y, \frac{xy+(x+1)^2}{x^2yz}\right)$

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Table 71 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 71a
2860	$x+y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{5}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	$1239\colon \left(\frac{(xz+y)^2}{x^2yz^2}, x, \frac{x^2z^3}{(xz+y)^2}\right)$

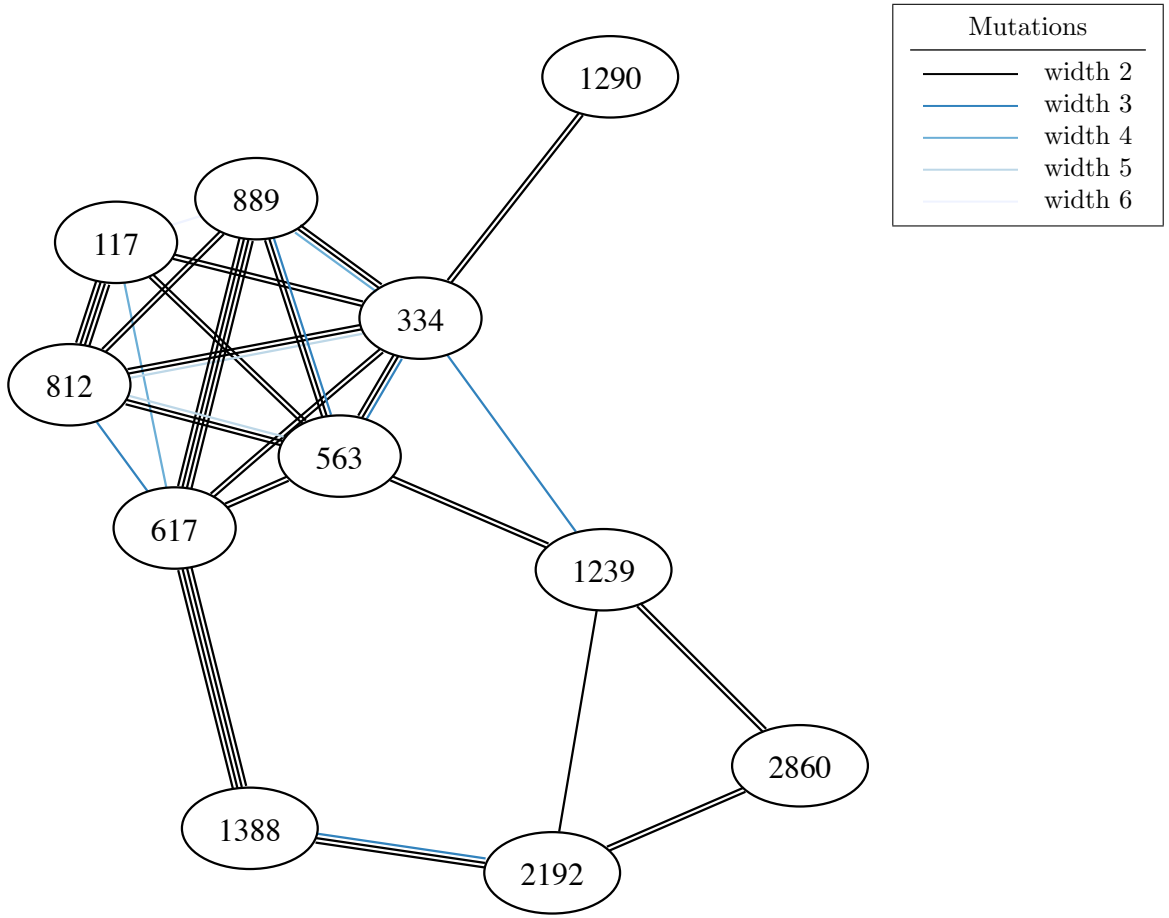

FIGURE 71B. All mutations between Minkowski polynomials in bucket 71

Bucket 72

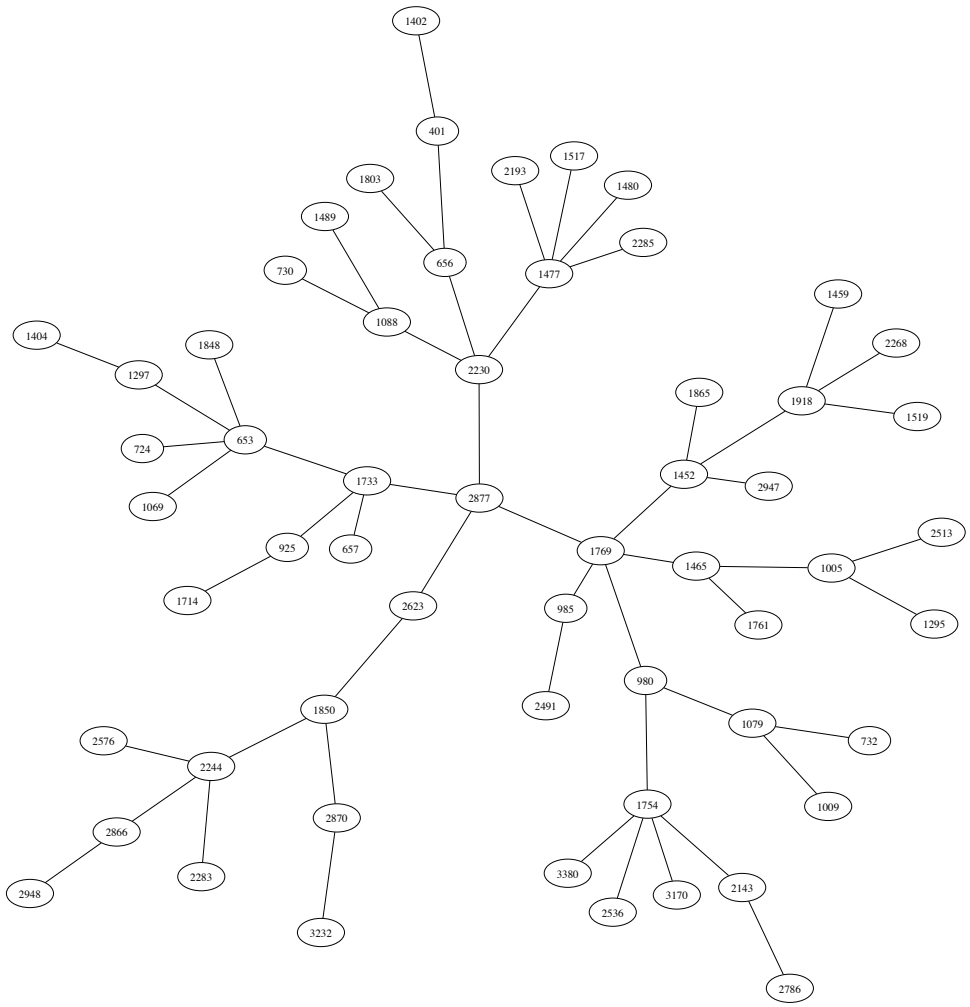

Figure 72a. Selected width-2 mutations between Minkowski polynomials in bucket 72

Table 72. Laurent polynomials and selected mutations for bucket 72.

Node	Laurent polynomial	Mutations from Figure 72a
401	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	656: $\left(x, \frac{xz+x+1}{xy}, \frac{x}{z}\right)$ 1402: $\left(y, \frac{xy}{yz+y+1}, \frac{yz+y+1}{xz}\right)$
653	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2yz^2}$	724: $\left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{y}{x}\right)$ 1069: $\left(\frac{xz+x+yz}{xy}, \frac{x^2z}{xz+x+yz}, \frac{1}{z}\right)$ 1297: $\left(y, \frac{xy^2z^2}{y^2z+(yz+1)^2}, \frac{y^2z+(yz+1)^2}{xy^2z}\right)$ 1733: $\left(\frac{x^2z}{xz+y+1}, \frac{xy}{xz+y+1}, \frac{xz+y+1}{x}\right)$ 1848: $\left(\frac{x^2z}{xz+y}, \frac{xz+y}{xy}, y\right)$
656	$x+\frac{x}{z}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}$	401: $\left(x, \frac{x^2+xz+z}{xyz}, \frac{x}{z}\right)$ 1803: $\left(y, \frac{y^2+z(y+1)^2}{xy^2z}, \frac{y^2+z(y+1)^2}{xy}\right)$ 2230: $\left(\frac{(y+z)^2}{xyz}, \frac{xy^2}{(y+z)^2}, y\right)$
657	$xy+x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	1733: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^2yz}{(xz+1)(xz+y+1)}, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
724	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xyz}$	653: $\left(\frac{xyz+1}{xz}, \frac{xyz+1}{x}, \frac{x^2yz}{xyz+1}\right)$
730	$xy+\frac{xy}{z}+x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}$	1088: $\left(\frac{xyz}{yz+z+1}, \frac{1}{y}, z\right)$
732	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	1079: $\left(y, \frac{xy}{y+1}, z\right)$
925	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	1714: $\left(x, \frac{x^2z}{y(1+z(x+1)^2)}, z\right)$ 1733: $\left(\frac{(xz+y+1)(xyz+xz+1)}{x^2yz}, \frac{(xz+y+1)(xyz+xz+1)}{x^3yz^2}, y\right)$
980	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	1079: $\left(x, \frac{xyz}{xz+1}, z\right)$ 1754: $\left(x, \frac{x^2yz^2}{(xz+1)(xz+z+1)}, z\right)$ 1769: $\left(x, \frac{(xz+1)^2}{x^2yz^2}, \frac{(xz+1)^2}{x^2yz}\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
985	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	1769: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$ 2491: $\left(y, \frac{xy^2}{z+(y+z)^2}, \frac{z+(y+z)^2}{xy^2z}\right)$
1005	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1295: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2yz}, \frac{y}{x}\right)$ 1465: $\left(x, y, \frac{y(y+1)}{xz}\right)$ 2513: $\left(\frac{(y+1)(xyz+y+1)}{xy}, \frac{(y+1)(xyz+y+1)}{x^2yz}, y\right)$
1009	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	1079: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1069	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}$	653: $\left(\frac{xyz^2+xyz+1}{xz}, \frac{xyz^2+xyz+1}{x^2yz^2}, \frac{1}{z}\right)$
1079	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	732: $\left(\frac{y(x+1)}{x}, x, z\right)$ 980: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 1009: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1088	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	730: $\left(\frac{x(yz+y+z)}{z}, \frac{1}{y}, z\right)$ 1489: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ 2230: $\left(\frac{xy}{(z+1)(y+z)}, \frac{(z+1)(y+z)}{xz}, \frac{xyz}{(z+1)(y+z)}\right)$
1295	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	1005: $\left(\frac{xz+yz+y}{xyz}, \frac{xz+yz+y}{xy}, \frac{x^2z}{xz+yz+y}\right)$
1297	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	653: $\left(\frac{x^2yz+(xyz+1)^2}{x^2yz^2}, x, yz\right)$ 1404: $\left(x, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$
1402	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}$	401: $\left(\frac{x^2+xyz+yz}{xz}, x, \frac{x}{yz}\right)$
1404	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1297: $\left(x, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
1452	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{1}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1769: $\left(y, \frac{(xz+1)(xyz+xz+1)}{x^2yz}, \frac{x^3yz^2}{(xz+1)(xyz+xz+1)}\right)$ 1865: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}, \frac{1}{y}\right)$ 1918: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, \frac{1}{z}\right)$ 2947: $\left(\frac{x^3y^2z^2}{(xyz+1)(xyz+y+1)}, \frac{(xyz+1)(xyz+y+1)}{x^2y^2z}, y\right)$
1459	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1918: $\left(x, \frac{1}{y}, \frac{z(x+1)}{x}\right)$
1465	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{y}{x^2z}$	1005: $\left(x, y, \frac{y(y+1)}{xz}\right)$ 1761: $\left(x, y, \frac{(y+1)(xy+x+y)}{x^2z}\right)$ 1769: $\left(x, \frac{x^2yz}{(xz+1)(xz+x+1)}, \frac{x^2yz^2}{(xz+1)(xz+x+1)}\right)$
1477	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1480: $\left(x, \frac{x+z+1}{xy}, z\right)$ 1517: $\left(x, \frac{y(x+1)}{x}, z\right)$ 2193: $\left(x, \frac{x+yz(x+1)^2}{x^2y^2z}, \frac{x+yz(x+1)^2}{x^2y}\right)$ 2230: $\left(\frac{(z+1)(y+1)(y+z)}{xyz}, \frac{xy^2}{(z+1)(y+1)(y+z)}, y\right)$ 2285: $\left(x, \frac{(x+1)(x+z+1)}{x^2y}, z\right)$
1480	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1477: $\left(x, \frac{x+z+1}{xy}, z\right)$
1489	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1088: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
1517	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1477: $\left(x, \frac{xy}{x+1}, z\right)$
1519	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1918: $\left(x, \frac{x+1}{xy}, z\right)$
1714	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	925: $\left(x, \frac{x^2z}{y(1+z(x+1)^2)}, z\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
1733	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	653: $\left(\frac{xz+yz+1}{z}, yz, \frac{xz^2}{xz+yz+1}\right)$ 657: $\left(\frac{(xz+1)(xy+xz+1)}{x^2z}, xy, \frac{x^3z^2}{(xz+1)(xy+xz+1)}\right)$ 925: $\left(\frac{(x+yz+y)(xz+x+y)}{x^2yz}, z, \frac{x^3z}{(x+yz+y)(xz+x+y)}\right)$ 2877: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
1754	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	980: $\left(x, \frac{y(xz+1)(xz+z+1)}{x^2z^2}, z\right)$ 2143: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{xyz}{xy+1}\right)$ 2536: $\left(\frac{xyz+x+y}{xy}, \frac{x^2}{xyz+x+y}, \frac{x^2yz}{xyz+x+y}\right)$ 3170: $\left(\frac{(xyz+y+1)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+y+1)^2}, y\right)$ 3380: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$
1761	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	1465: $\left(x, y, \frac{(y+1)(xy+x+y)}{x^2z}\right)$
1769	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	980: $\left(x, \frac{(xz+y)^2}{x^2yz^2}, \frac{z}{y}\right)$ 985: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$ 1452: $\left(\frac{(yz+1)(xyz+yz+1)}{xy^2z}, x, \frac{xy^3z^2}{(yz+1)(xyz+yz+1)}\right)$ 1465: $\left(x, \frac{(xz+y)(xy+xz+y)}{x^2z}, \frac{z}{y}\right)$ 2877: $\left(\frac{x^4yz^2}{x^3yz^2+(xz+1)^2}, \frac{x^3yz^2+(xz+1)^2}{x^3z^2}, \frac{x^3yz^2+(xz+1)^2}{x^3yz}\right)$
1803	$x+yz+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}$	656: $\left(\frac{x^3y+z(x+1)^2}{x^2yz}, x, \frac{z}{xy}\right)$
1848	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	653: $\left(\frac{xy+1}{y}, z, \frac{xy^2z}{xy+1}\right)$
1850	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	2244: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$ 2623: $\left(\frac{(xyz+xz+1)(x^2yz^2+xyz+1)}{x^3yz^2}, \frac{(xyz+xz+1)(x^2yz^2+xyz+1)}{x^4y^2z^3}, \frac{x^4yz^3}{(xyz+xz+1)(x^2yz^2+xyz+1)}\right)$ 2870: $\left(x, \frac{y(xz+x+1)}{xz}, z\right)$
1865	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1452: $\left(\frac{xyz+z+1}{yz}, \frac{1}{z}, \frac{xy^2z}{xyz+z+1}\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
1918	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1452: $\left(\frac{xyz+1}{yz}, \frac{xy^2z}{xyz+1}, \frac{1}{z}\right)$ 1459: $\left(x, \frac{1}{y}, \frac{xz}{x+1}\right)$ 1519: $\left(x, \frac{x+1}{xy}, z\right)$ 2268: $\left(x, \frac{1}{z}, \frac{x^2}{y(x+1)(xz+x+z)}\right)$
2143	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	1754: $\left(\frac{xy+1}{x}, \frac{x^2y}{xy+1}, \frac{z(xy+1)}{xy}\right)$ 2786: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, \frac{(xyz+1)^2}{x^2yz^2}, z\right)$
2193	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2z}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{2}{x^2y}+\frac{z}{x^3}$	1477: $\left(x, \frac{xy+z(x+1)^2}{x^2yz}, \frac{x^2z^2}{xy+z(x+1)^2}\right)$
2230	$x+y+z+\frac{2z}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	656: $\left(\frac{(xy+1)^2}{x^2y}, z, \frac{z}{xy}\right)$ 1088: $\left(\frac{(x+z)(xy+1)}{xy}, yz, \frac{z}{x}\right)$ 1477: $\left(\frac{(z+1)(xy+1)(xy+z)}{x^2yz}, z, \frac{z}{xy}\right)$ 2877: $\left(x, \frac{(xz+1)^2}{x^2yz}, \frac{(xz+1)^2}{x^3yz^2}\right)$
2244	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	1850: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$ 2283: $\left(x, \frac{xyz+1}{xy^2z}, \frac{xyz+1}{xy}\right)$ 2576: $\left(x, \frac{(x+1)(xyz+1)}{x^2y^2z}, \frac{(x+1)(xyz+1)}{x^2y}\right)$ 2866: $\left(\frac{(xyz+1)(xyz+(xz+1)^2)}{x^3yz^2}, \frac{1}{y}, \frac{x^4yz^3}{(xyz+1)(xyz+(xz+1)^2)}\right)$
2268	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{3yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	1918: $\left(x, \frac{x^2y}{z(x+1)(xy+x+1)}, \frac{1}{y}\right)$
2283	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2244: $\left(x, \frac{xz+y}{xyz}, \frac{xz^2}{xz+y}\right)$
2285	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1477: $\left(x, \frac{(x+1)(x+z+1)}{x^2y}, z\right)$
2491	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	985: $\left(\frac{yz+(xyz+1)^2}{x^2yz^2}, x, \frac{1}{yz}\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
2513	$x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1005: $\left(\frac{(z+1)(xz+yz+y)}{xyz}, z, \frac{x^2z}{(z+1)(xz+yz+y)}\right)$
2536	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{3y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	1754: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{x^2z}{xy+xz+1}\right)$
2576	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z}$	2244: $\left(x, \frac{(x+1)(xz+y)}{x^2yz}, \frac{x^2z^2}{(x+1)(xz+y)}\right)$
2623	$x+yz+y+z+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	1850: $\left(\frac{(xyz+x+y)(x^2z+x+y)}{x^3yz}, \frac{1}{yz}, \frac{x^4yz^2}{(xyz+x+y)(x^2z+x+y)}\right)$ 2877: $\left(x, \frac{x^4yz^3}{(xz+1)^2(x^2z+xz+1)}, \frac{(xz+1)^2(x^2z+xz+1)}{x^4yz^2}\right)$
2786	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2z}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2143: $\left(\frac{(xyz+1)^2}{xy^2z^2}, \frac{x^2y^3z^2}{(xyz+1)^2}, z\right)$
2866	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2244: $\left(\frac{(xz+y)(xz+y(xz+1)^2)}{x^3yz^2}, \frac{1}{y}, \frac{x^4yz^3}{(xz+y)(xz+y(xz+1)^2)}\right)$ 2948: $\left(x, \frac{xy^2z}{xyz+1}, \frac{xyz+1}{xy}\right)$
2870	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{2y}{x^3z^2}+\frac{y}{x^4z^2}$	1850: $\left(x, \frac{xyz}{xz+x+1}, z\right)$ 3232: $\left(x, \frac{x^2yz+x+1}{x^2y^2z}, \frac{x^2yz+x+1}{x^2y}\right)$
2877	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{1}{x^3yz^2}+\frac{4}{x^4yz^2}+\frac{1}{x^5yz^3}$	1733: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$ 1769: $\left(\frac{x^3yz^2+(xz+1)^2}{x^2yz^2}, \frac{x^3y^2z^2}{x^3yz^2+(xz+1)^2}, \frac{x^3yz^3}{x^3yz^2+(xz+1)^2}\right)$ 2230: $\left(x, \frac{(y+z)^2}{xy^2z}, \frac{y}{xz}\right)$ 2623: $\left(x, \frac{(xyz+1)^2(x^2yz+xyz+1)}{x^4y^2z^3}, yz\right)$
2947	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1452: $\left(\frac{(xyz+1)(xyz+z+1)}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+1)(xyz+z+1)}\right)$

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Table 72 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 72a
2948	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2z}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2866: $\left(x, \frac{xyz+1}{xz}, \frac{xyz^2}{xyz+1}\right)$
3170	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1754: $\left(\frac{(xyz+z+1)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+z+1)^2}\right)$
3232	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{2}{x^3yz}+\frac{3}{x^3y^2z}+\frac{1}{x^4y^2z}$	2870: $\left(x, \frac{x^2z+xy+y}{x^2yz}, \frac{x^2z^2}{x^2z+xy+y}\right)$
3380	$x+y+z+\frac{z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{2}{x^2z}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{5}{x^3yz}+\frac{3}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1754: $\left(\frac{(xy+1)(xy+xz+1)}{x^2y}, \frac{x^3y^2}{(xy+1)(xy+xz+1)}, \frac{x^3yz}{(xy+1)(xy+xz+1)}\right)$

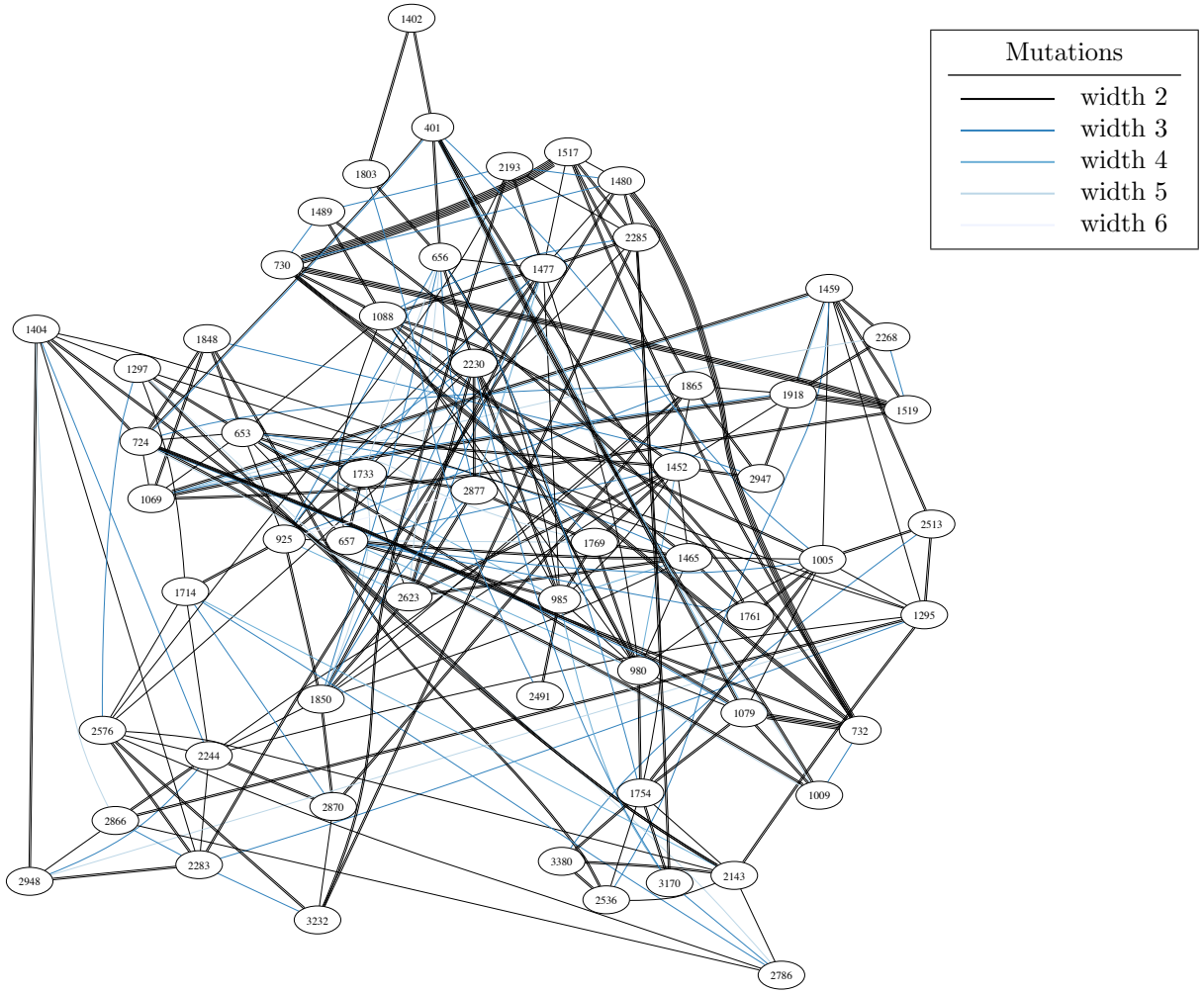

Figure 72b. All mutations between Minkowski polynomials in bucket 72

Bucket 73

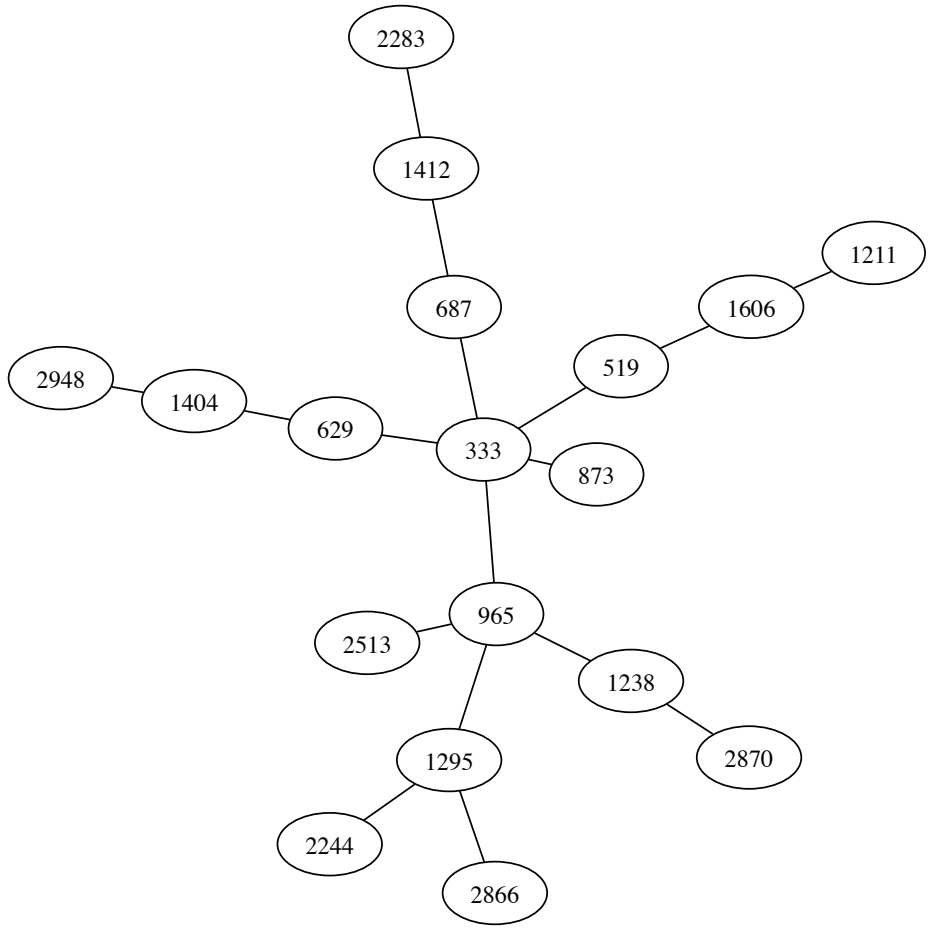

Figure 73a. Selected width-2 mutations between Minkowski polynomials in bucket 73

Table 73. Laurent polynomials and selected mutations for bucket 73.

Node	Laurent polynomial	Mutations from Figure 73a
333	$x+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	519: $\left(\frac{y^2z+(yz+1)^2}{xyz},\frac{y^2z+(yz+1)^2}{xy^2z^2},z\right)$ 629: $\left(x,\frac{xy}{x+1},z\right)$ 687: $\left(x,\frac{xy}{x+1},\frac{z(x+1)}{x}\right)$ 873: $\left(y,\frac{xy^2}{(y+1)^2},z\right)$ 965: $\left(y,\frac{xy^2}{(y+1)^2},\frac{(y+1)^2}{xyz}\right)$
519	$x+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	333: $\left(\frac{x^2+z(x+y)^2}{x^2yz},\frac{x}{yz},z\right)$ 1606: $\left(\frac{z^2+(y+z)^3}{xyz^2},\frac{z^2+(y+z)^3}{xyz},\frac{xz^2}{z^2+(y+z)^3}\right)$
629	$x+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	333: $\left(x,\frac{y(x+1)}{x},z\right)$ 1404: $\left(\frac{1+z(y+1)^2}{xyz},y,z\right)$
687	$x+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	333: $\left(x,\frac{y(x+1)}{x},\frac{xz}{x+1}\right)$ 1412: $\left(\frac{yz+(y+1)^2}{xy},y,z\right)$
873	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	333: $\left(\frac{y(x+1)^2}{x^2},x,z\right)$
965	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	333: $\left(\frac{y(x+1)^2}{x^2},x,\frac{x}{yz}\right)$ 1238: $\left(y+z,\frac{xz}{y+z},\frac{xy}{y+z}\right)$ 1295: $\left(\frac{yz+1}{y},\frac{xyz}{yz+1},\frac{y^2z}{yz+1}\right)$ 2513: $\left(\frac{(y+1)(xyz+1)}{xy},\frac{x^2yz}{(y+1)(xyz+1)},\frac{x^2y^2z}{(y+1)(xyz+1)}\right)$
1211	$x+y^2z+2yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3y^2z^2}$	1606: $\left(x,\frac{z}{xyz+(y+z)^2},\frac{xyz+(y+z)^2}{xy}\right)$
1238	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	965: $\left(y+z,\frac{xz}{y+z},\frac{xy}{y+z}\right)$ 2870: $\left(x,\frac{y(x+1)^2}{x^2},z\right)$

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Table 73 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 73a
1295	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	965: $\left(\frac{y(xz+1)}{xz}, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$ 2244: $\left(\frac{x^2z}{xz+y}, \frac{1}{y}, \frac{xz+y}{x}\right)$ 2866: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
1404	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	629: $\left(\frac{1+z(y+1)^2}{xyz}, y, z\right)$ 2948: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
1412	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	687: $\left(\frac{yz+(y+1)^2}{xy}, y, z\right)$ 2283: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
1606	$x+y+\frac{2y}{z}+z+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	519: $\left(\frac{xy^2z^3+(yz+1)^3}{xy^2z^2}, \frac{1}{xz}, \frac{y}{x}\right)$ 1211: $\left(x, \frac{xz}{x^2yz+(xyz+1)^2}, \frac{x^2yz^2}{x^2yz+(xyz+1)^2}\right)$
2244	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	1295: $\left(\frac{xyz+1}{yz}, \frac{1}{y}, \frac{xyz^2}{xyz+1}\right)$
2283	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1412: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
2513	$x+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	965: $\left(\frac{(y+z)(xz+1)}{xz}, \frac{z}{y}, \frac{x^2yz}{(y+z)(xz+1)}\right)$
2866	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	1295: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$
2870	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{4y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{5y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{2y}{x^3z}+\frac{2y}{x^3z^2}+\frac{y}{x^4z^2}$	1238: $\left(x, \frac{x^2y}{(x+1)^2}, z\right)$
2948	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{2}{x^2z}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	1404: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$

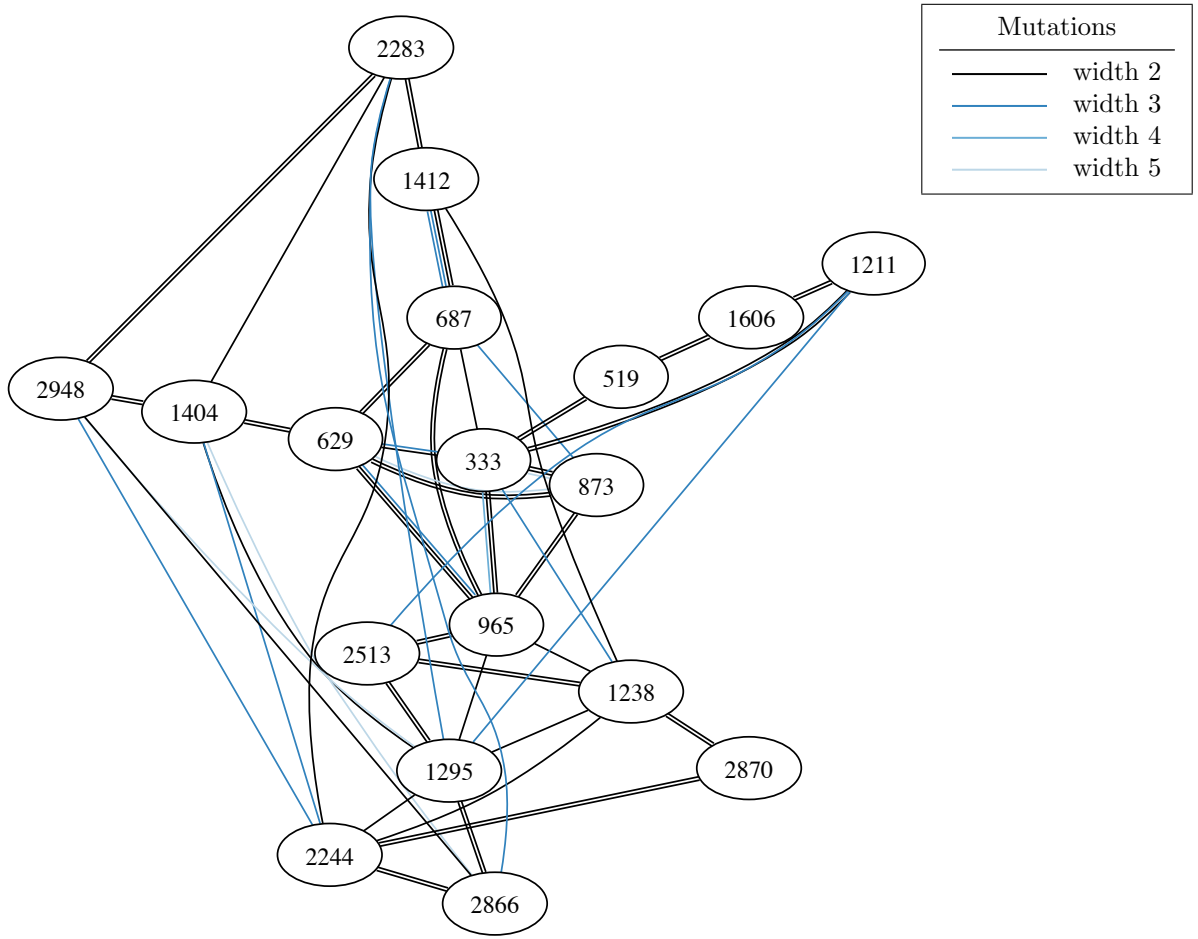

FIGURE 73B. All mutations between Minkowski polynomials in bucket 73

Bucket 74

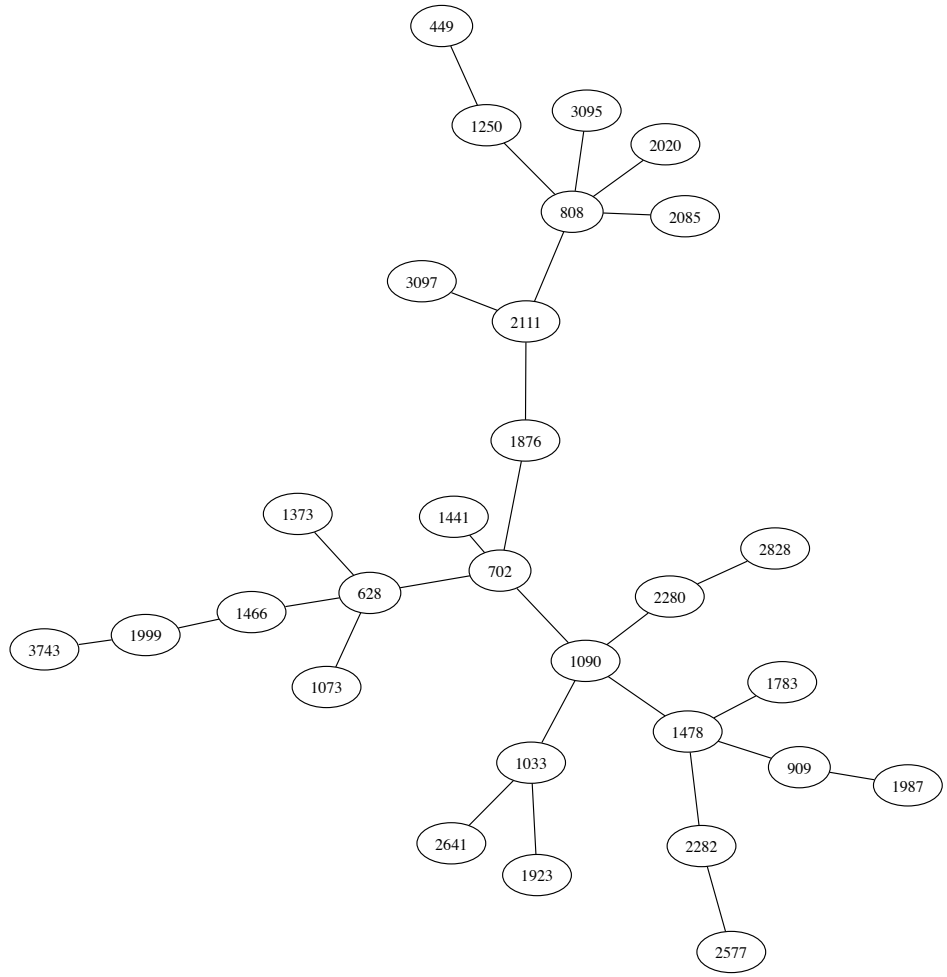

Figure 74a. Selected width-2 mutations between Minkowski polynomials in bucket 74

Table 74. Laurent polynomials and selected mutations for bucket 74.

Node	Laurent polynomial	Mutations from Figure 74a
449	$x + yz^2 + 2yz + y + 2z + \frac{1}{y} + \frac{2}{x} + \frac{2}{xz} + \frac{2}{xyz} + \frac{1}{x^2yz^2}$	$1250: \left(x, \frac{1}{y(yz+1)}, \frac{yz+1}{xz}\right)$
628	$\frac{xy}{z} + x + \frac{2x}{z} + \frac{x}{yz} + y + z + \frac{1}{y} + \frac{y}{x} + \frac{2}{x} + \frac{1}{xy}$	$702: \left(x, \frac{1}{y}, z(y+1)\right)$ $1073: \left(\frac{x+y}{xy}, \frac{x}{y}, z\right)$ $1373: \left(\frac{(y+1)^2}{xy}, \frac{1}{y}, z\right)$ $1466: \left(\frac{xy}{xz+y}, y, \frac{x^2z}{xz+y}\right)$
702	$x + \frac{x}{z} + \frac{x}{yz} + yz + y + z + \frac{1}{y} + \frac{y}{x} + \frac{2}{x} + \frac{1}{xy}$	$628: \left(x, \frac{1}{y}, \frac{yz}{y+1}\right)$ $1090: \left(\frac{x+y}{xy}, \frac{x}{y}, \frac{x+y}{xyz}\right)$ $1441: \left(\frac{xz}{y+z+1}, \frac{1}{y}, \frac{xy}{y+z+1}\right)$ $1876: \left(y, \frac{y^2+yz+z}{xyz}, \frac{xy^2}{y^2+yz+z}\right)$
808	$\frac{x^2}{yz^2} + x + \frac{2x}{z} + \frac{2x}{yz} + y + z + \frac{1}{y} + \frac{2}{yz} + \frac{2}{x} + \frac{2}{xy} + \frac{1}{x^2y}$	$1250: \left(\frac{xyz}{yz+1}, \frac{yz+1}{y}, \frac{x}{yz+1}\right)$ $2020: \left(\frac{x^2yz}{x^2z+x+y}, \frac{x^2z+x+y}{x^2}, \frac{x^3z}{x^2z+x+y}\right)$ $2085: \left(\frac{x+y}{xy}, \frac{x^2}{x+y}, \frac{z(x+y)}{x}\right)$ $2111: \left(y, \frac{x^2}{x+z}, \frac{y(x+z)}{xz}\right)$ $3095: \left(\frac{x^2y^2z}{(y+z)(xy^2+y+z)}, \frac{(y+z)(xy^2+y+z)}{xy^2}, \frac{x^2y^3}{(y+z)(xy^2+y+z)}\right)$
909	$x + \frac{x}{yz} + y + z + \frac{1}{z} + \frac{1}{y} + \frac{2y}{x} + \frac{2z}{x} + \frac{1}{x} + \frac{y}{x^2} + \frac{z}{x^2}$	$1478: \left(x, \frac{xy}{x+1}, z\right)$ $1987: \left(\frac{x^2yz}{xyz^2+xyz+1}, \frac{x^2yz^2}{xyz^2+xyz+1}, \frac{x}{xyz^2+xyz+1}\right)$
1033	$xz + x + yz + y + z + \frac{1}{z} + \frac{1}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{2}{xyz} + \frac{1}{x^2y^2z}$	$1090: \left(\frac{yz+1}{y}, x, \frac{y^2z}{x(yz+1)}\right)$ $1923: \left(y, z, \frac{yz+1}{xyz}\right)$ $2641: \left(z, y, \frac{(yz+1)^2}{xy^2z^2}\right)$
1073	$x + \frac{x}{y} + \frac{x}{y^2z} + y + z + \frac{1}{y} + \frac{3}{yz} + \frac{y}{x} + \frac{1}{x} + \frac{3}{xz} + \frac{y}{x^2z}$	$628: \left(\frac{y+1}{x}, \frac{y+1}{xy}, z\right)$

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Table 74 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 74a
1090	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	$702\colon \left(\frac{y+1}{x}, \frac{y+1}{xy}, \frac{x}{z}\right)$ $1033\colon \left(x, \frac{xyz+1}{y}, \frac{xy^2z}{xyz+1}\right)$ $1478\colon \left(y, \frac{x+yz}{xz}, \frac{x^2}{x+yz}\right)$ $2280\colon \left(y, \frac{(z+1)(yz+1)}{xz}, \frac{xyz^2}{(z+1)(yz+1)}\right)$
1250	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	$449\colon \left(x, \frac{1}{y(z+1)}, yz(z+1)\right)$ $808\colon \left(x+z, \frac{x+z}{yz}, \frac{xy}{x+z}\right)$
1373	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{4y}{xz}+\frac{2}{x}+\frac{6}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}$	$628\colon \left(\frac{(y+1)^2}{xy}, \frac{1}{y}, z\right)$
1441	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$702\colon \left(x+yz+z, \frac{1}{y}, \frac{x}{yz}\right)$
1466	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$628\colon \left(x+z, y, \frac{yz}{x(x+z)}\right)$ $1999\colon \left(x, \frac{xy^2z}{(yz+1)(xyz+1)}, \frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$
1478	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{z}{x^2}$	$909\colon \left(x, \frac{y(x+1)}{x}, z\right)$ $1090\colon \left(\frac{x+yz}{y}, x, \frac{x+yz}{y^2z}\right)$ $1783\colon \left(x, \frac{(x+1)(x+y)}{xyz}, y\right)$ $2282\colon \left(y, z, \frac{xy^2}{(y+1)^2}\right)$
1783	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	$1478\colon \left(x, z, \frac{(x+1)(x+z)}{xyz}\right)$
1876	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}$	$702\colon \left(\frac{xyz+x+1}{xy}, x, \frac{x}{yz}\right)$ $2111\colon \left(x, y, \frac{z(xy+y+1)}{xy}\right)$
1923	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1033\colon \left(\frac{xy+1}{xyz}, y, x\right)$
1987	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	$909\colon \left(x+y+z, \frac{x^2}{yz(x+y+z)}, \frac{y}{x}\right)$

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Table 74 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 74a
1999	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	$1466\colon \left(x, \frac{(y+z)(xz+y)}{xz}, \frac{xz^2}{y(y+z)(xz+y)}\right)$ $3743\colon \left(\frac{x^4y^3z^2}{x^3y^3z^2+(xyz+1)^2}, \frac{x^3y^3z^2+(xyz+1)^2}{x^3y^2z^2}, z\right)$
2020	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	$808\colon \left(\frac{x+yz^2+z}{yz}, \frac{x(x+yz^2+z)}{yz^2}, \frac{y^2z^2}{x+yz^2+z}\right)$
2085	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	$808\colon \left(\frac{xy+1}{x}, \frac{xy+1}{x^2y}, \frac{xyz}{xy+1}\right)$
2111	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	$808\colon \left(\frac{x+yz}{z}, x, \frac{x(x+yz)}{yz^2}\right)$ $1876\colon \left(x, y, \frac{xyz}{xy+y+1}\right)$ $3097\colon \left(\frac{(xz+y)(xy^2z+(y+1)^2)}{x^2y^2z}, y, \frac{(xz+y)(xy^2z+(y+1)^2)}{x^3yz^2}\right)$
2280	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	$1090\colon \left(\frac{(yz+1)(x+yz)}{y^2z}, x, \frac{yz}{x}\right)$ $2828\colon \left(x, \frac{(y+z)(xz+y+z)}{xz}, \frac{xz^2}{y(y+z)(xz+y+z)}\right)$
2282	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$1478\colon \left(\frac{z(x+1)^2}{x^2}, x, y\right)$ $2577\colon \left(z, x, \frac{(x+1)(xz+(x+1)^2)}{x^2yz}\right)$
2577	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{4}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{6}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	$2282\colon \left(y, \frac{(y+1)(xy+(y+1)^2)}{xy^2z}, x\right)$
2641	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	$1033\colon \left(\frac{(xy+1)^2}{x^2y^2z}, y, x\right)$
2828	$x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	$2280\colon \left(x, \frac{xy^2z}{(yz+1)(xyz+yz+1)}, \frac{xy^3z^2}{(yz+1)(xyz+yz+1)}\right)$
3095	$x+y+z+\frac{2z}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	$808\colon \left(\frac{(x+z)(x+yz^2+z)}{yz^2}, \frac{y^2z^3}{(x+z)(x+yz^2+z)}, \frac{xy^2z^2}{(x+z)(x+yz^2+z)}\right)$
3097	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	$2111\colon \left(\frac{(x+z)(xy^3+z(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^3}{(x+z)(xy^3+z(y+1)^2)}\right)$
3743	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{4z}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{4z}{x^2y}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{6}{x^3y^2}+\frac{6}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{4}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	$1999\colon \left(\frac{x^3y^3z^2+(xyz+1)^2}{x^2y^3z^2}, \frac{x^3y^4z^2}{x^3y^3z^2+(xyz+1)^2}, z\right)$

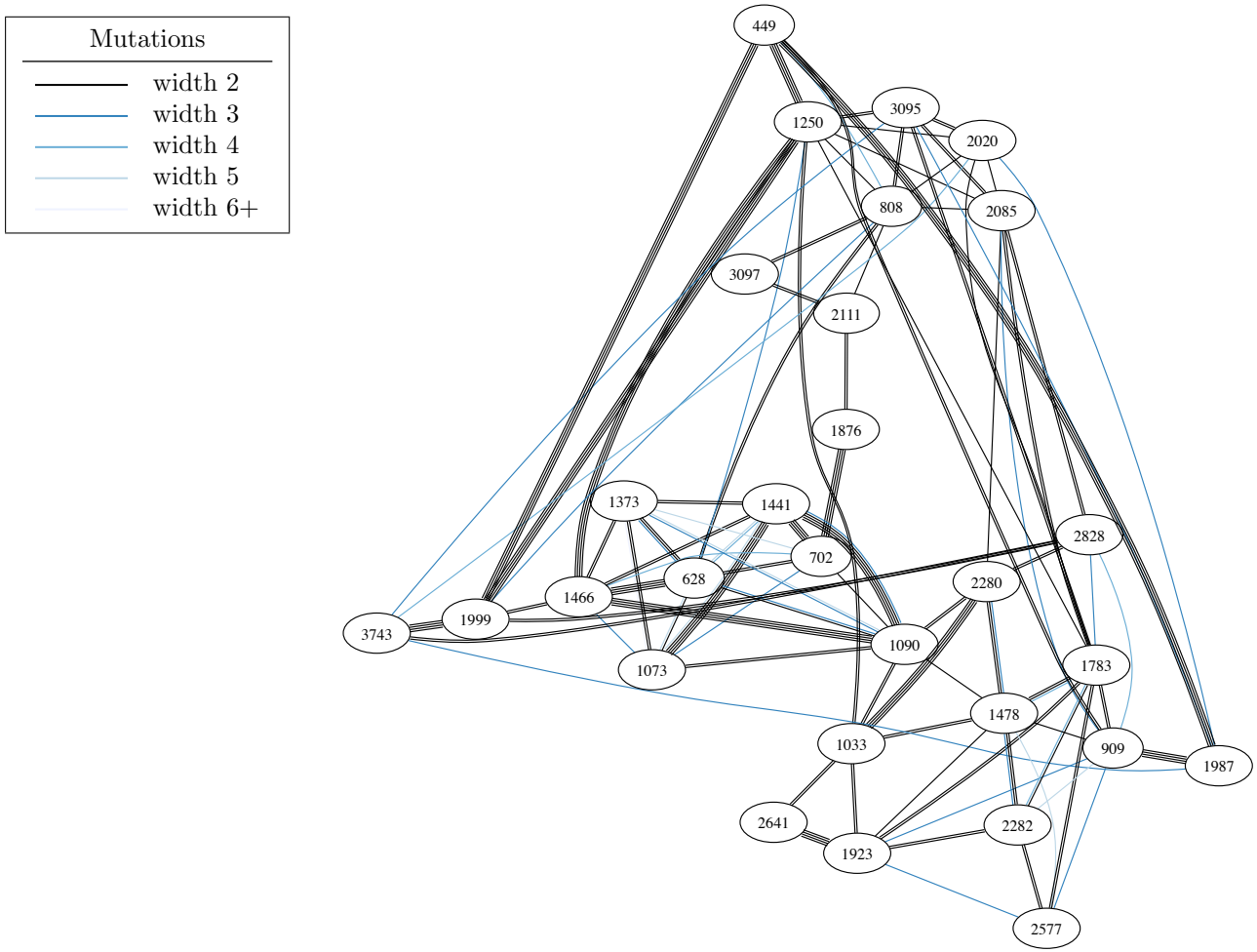
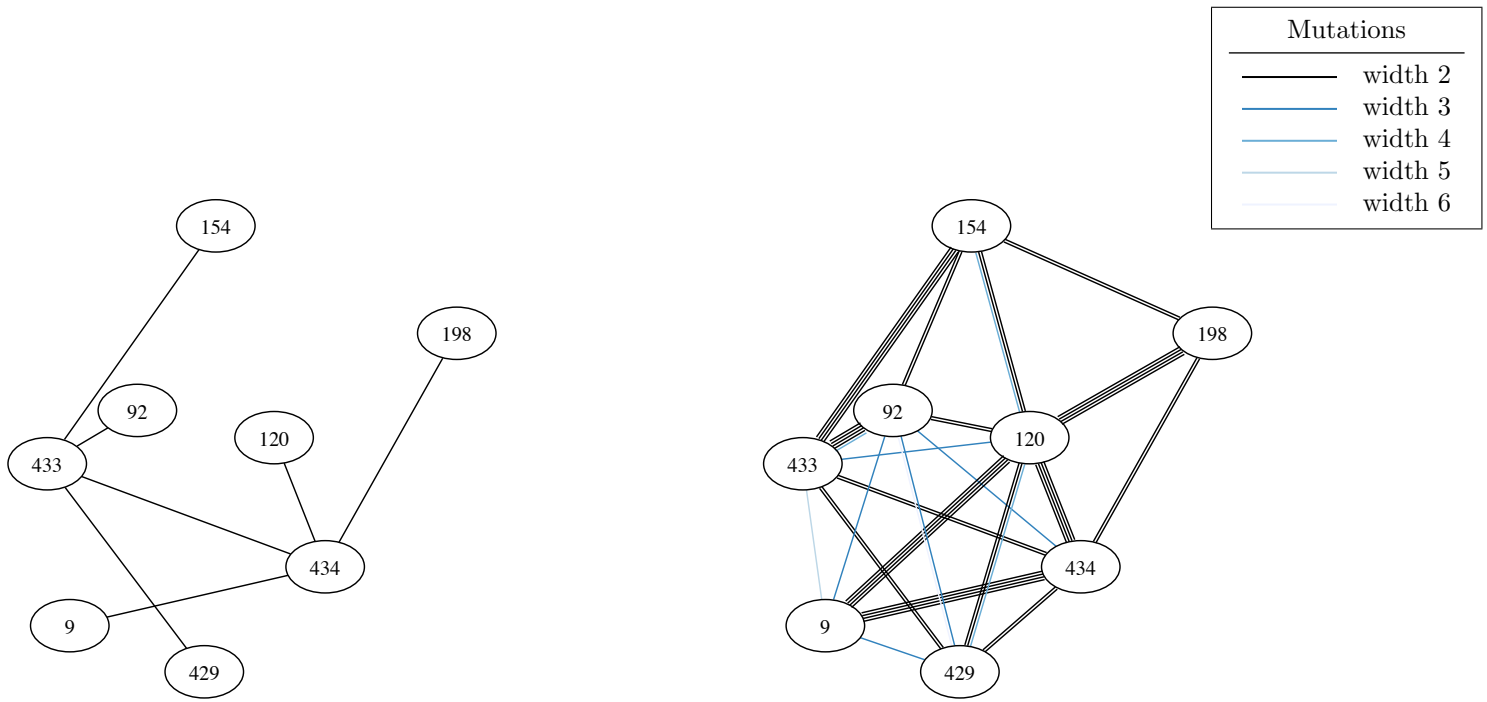


FIGURE 74B. All mutations between Minkowski polynomials in bucket 74

Bucket 75



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 75. Mutations between Minkowski polynomials in bucket 75

Table 75. Laurent polynomials and selected mutations for bucket 75.

Node	Laurent polynomial	Mutations from Figure 75a
9	$x+yz^2+2yz+y+\frac{2}{yz}+\frac{1}{xy^2z^2}$	$434\colon \left(\frac{(xyz+1)^2}{x^2yz^2}, \frac{x^3y^2z^2}{(xyz+1)^2}, \frac{1}{xyz}\right)$
92	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xyz}+\frac{1}{x^2z}$	$433\colon \left(\frac{xy}{y+z}, \frac{xz}{y+z}, y+z\right)$
120	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	$434\colon \left(\frac{(z+1)^2(xyz+1)}{x^2yz^2}, \frac{(z+1)^2(xyz+1)}{xz}, \frac{x}{(z+1)^2(xyz+1)}\right)$
154	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	$433\colon \left(\frac{x^2yz}{xyz+y+z}, \frac{xyz+y+z}{xy}, \frac{xz}{xyz+y+z}\right)$
198	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{1}{x}$	$434\colon \left(\frac{(z+1)(xyz+1)}{x^2yz^2}, \frac{(z+1)(xyz+1)}{xz}, \frac{(z+1)(xyz+1)}{x^2yz}\right)$
429	$x+yz^2+2yz+y+\frac{4z}{x}+\frac{4}{x}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{4}{x^3y^2z}+\frac{1}{x^4y^3z^2}$	$433\colon \left(x, \frac{(y+z)^3}{x^2y^2z^2}, \frac{xy^3z}{(y+z)^3}\right)$
433	$x+y+z+\frac{2y}{xz}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	$92\colon \left(x+y, \frac{xz}{x+y}, \frac{yz}{x+y}\right)$ $154\colon \left(\frac{xy+yz+1}{y}, \frac{xy}{z(xy+yz+1)}, \frac{xy^2}{xy+yz+1}\right)$ $429\colon \left(x, \frac{(xyz+1)^3}{x^3y^2z}, \frac{(xyz+1)^3}{x^4y^3z^2}\right)$ $434\colon (x, y(z+1), yz(z+1))$
434	$x+yz^2+2yz+y+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	$9\colon \left(y(z+1)^2, \frac{x}{(z+1)^2}, \frac{1}{xyz}\right)$ $120\colon \left(\frac{(yz+1)^2(x+y)}{xy^2z}, \frac{y^4z^2}{(yz+1)^2(x+y)}, \frac{x}{y}\right)$ $198\colon \left(\frac{(x+z)(x+y)}{xyz}, \frac{xy^2}{(x+z)(x+y)}, \frac{z}{x}\right)$ $433\colon \left(x, \frac{y^2}{y+z}, \frac{z}{y}\right)$

Bucket 76

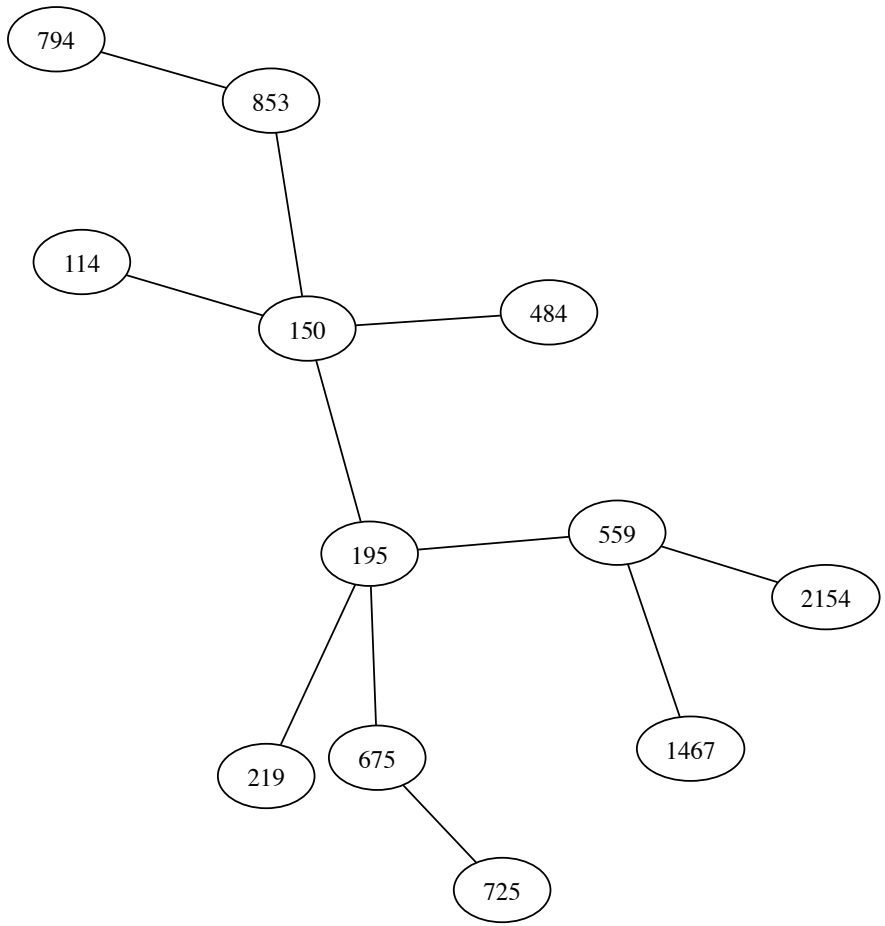


Figure 76a. Selected width-2 mutations between Minkowski polynomials in bucket 76

Table 76. Laurent polynomials and selected mutations for bucket 76.

Node	Laurent polynomial	Mutations from Figure 76a
114	$x+y+z+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	150: $\left(x+y, z, \frac{x}{y(x+y)}\right)$
150	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	114: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, y\right)$ 195: $\left(x, \frac{x}{y(x+1)}, \frac{1}{z}\right)$ 484: $\left(y, \frac{x^2y^2z}{y^2+xz(y+1)^2}, \frac{y^2+xz(y+1)^2}{xy^2}\right)$ 853: $\left(\frac{x^2yz}{xyz+y+z}, \frac{xz}{xyz+y+z}, \frac{xy}{xyz+y+z}\right)$
195	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	150: $\left(x, \frac{x}{y(x+1)}, \frac{1}{z}\right)$ 219: $\left(\frac{z+1}{y}, z, \frac{1}{x}\right)$ 559: $\left(y, \frac{xy}{xyz+y+1}, \frac{xyz+y+1}{x^2yz}\right)$ 675: $\left(\frac{x^2z}{xz+1}, y, \frac{x}{xz+1}\right)$
219	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}$	195: $\left(\frac{1}{z}, \frac{y+1}{x}, y\right)$
484	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}$	150: $\left(\frac{x^2+yz(x+1)^2}{x^2z}, x, \frac{x^2yz^2}{x^2+yz(x+1)^2}\right)$
559	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	195: $\left(\frac{xyz+x+yz}{xz}, x, \frac{x}{y(xyz+x+yz)}\right)$ 1467: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$ 2154: $\left(\frac{x^3y^2}{(xy+1)^2}, \frac{(xy+1)^2}{x^2y}, \frac{z(xy+1)^2}{x^2y^2}\right)$
675	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	195: $\left(x+z, y, \frac{x}{z(x+z)}\right)$ 725: $\left(x, y, \frac{y+1}{x^2yz}\right)$
725	$x+yz+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	675: $\left(x, y, \frac{y+1}{x^2yz}\right)$
794	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	853: $\left(x, y, \frac{(xy+1)^2}{x^3yz}\right)$
853	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	150: $\left(x+y+z, \frac{x}{y(x+y+z)}, \frac{x}{z(x+y+z)}\right)$ 794: $\left(x, y, \frac{(xy+1)^2}{x^3yz}\right)$

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Table 76 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 76a
1467	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2y}{x^2}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	559: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{y}{xz(xy+1)}\right)$
2154	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{5}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{2}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	559: $\left(\frac{(xy+1)^2}{xy^2}, \frac{x^2y^3}{(xy+1)^2}, \frac{x^2y^2z}{(xy+1)^2}\right)$

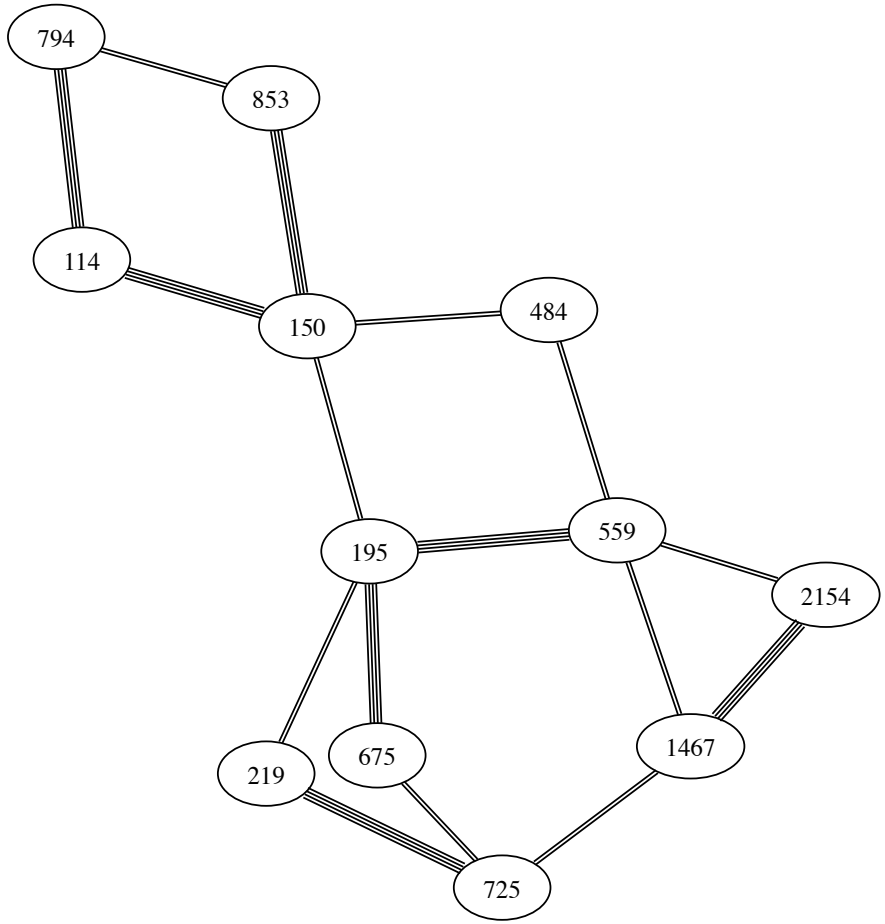

FIGURE 76B. All mutations between Minkowski polynomials in bucket 76 are of width 2

Bucket 77

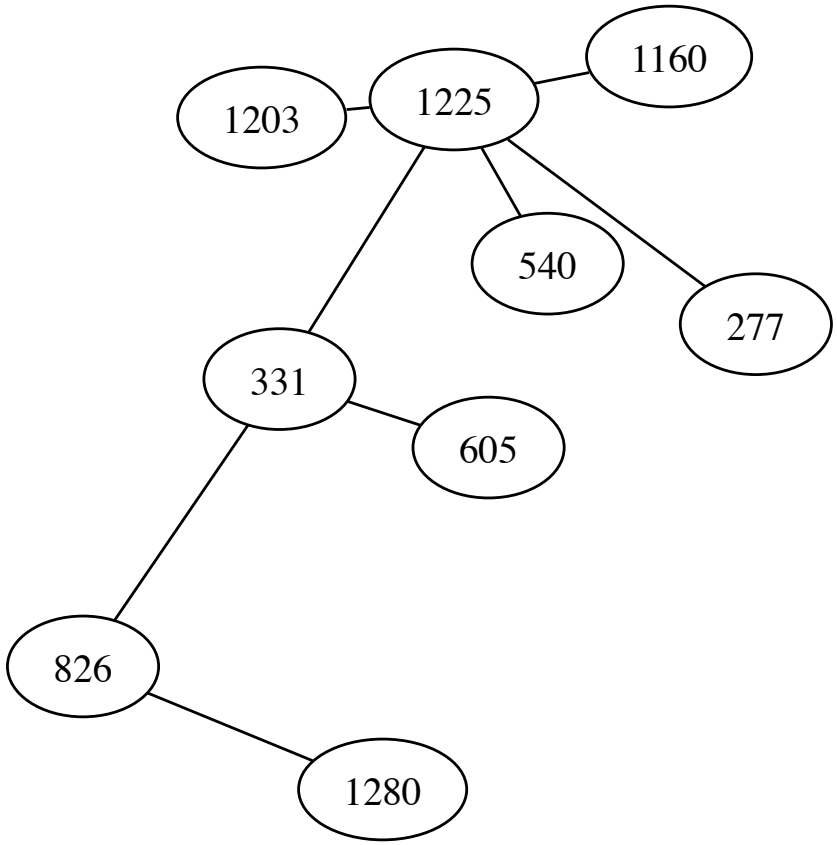

Figure 77a. Selected width-2 mutations between Minkowski polynomials in bucket 77

Table 77. Laurent polynomials and selected mutations for bucket 77.

Node	Laurent polynomial	Mutations from Figure 77a
277	$x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	1225: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{y(xz+1)}{xz}\right)$
331	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{z}{x^2}$	605: $\left(\frac{xz+yz+1}{xyz}, \frac{xz+yz+1}{x}, \frac{xz+yz+1}{x^2z}\right)$ 826: $\left(y, \frac{x^2y^2z}{xy^2z+(y+1)^2}, \frac{xy^2}{xy^2z+(y+1)^2}\right)$ 1225: $\left(\frac{x^3yz}{(xz+1)(xy+1)}, \frac{(xz+1)(xy+1)}{x^2y}, \frac{x^2z}{(xz+1)(xy+1)}\right)$
540	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{y}{x^3z}$	1225: $\left(\frac{(xz+1)(x^2yz+(xy+1)^2)}{x^3yz}, \frac{(xz+1)(x^2yz+(xy+1)^2)}{x^4y^2z}, \frac{x^4yz^2}{(xz+1)(x^2yz+(xy+1)^2)}\right)$
605	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	331: $\left(\frac{xy+xz+yz}{xyz}, \frac{xy+xz+yz}{x^2y}, \frac{xy^2}{xy+xz+yz}\right)$
826	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	331: $\left(\frac{x^2y+z(x+1)^2}{x^2}, x, \frac{x^2y}{z(x^2y+z(x+1)^2)}\right)$ 1280: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{y(x+y)}{x^2z}\right)$
1160	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xy}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{6}{x^3yz}+\frac{1}{x^3y^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^3z}$	1225: $\left(x, y, \frac{(xy+1)^3}{x^4y^2z}\right)$
1203	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	1225: $\left(x, y, \frac{xyz}{xy+1}\right)$
1225	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{3}{x^3yz}+\frac{1}{x^3y^2}+\frac{1}{x^4y^2z}$	277: $\left(\frac{xy+1}{y}, \frac{xyz}{xy+1}, \frac{xy^2}{xy+1}\right)$ 331: $\left(\frac{(x+z)(xy+1)}{xy}, \frac{x^2y}{z(x+z)(xy+1)}, \frac{x^2y^2}{(x+z)(xy+1)}\right)$ 540: $\left(\frac{(xz+1)(x^2yz+(x+y)^2)}{x^3yz}, \frac{x^4z}{(xz+1)(x^2yz+(x+y)^2)}, \frac{x^4yz^2}{(xz+1)(x^2yz+(x+y)^2)}\right)$ 1160: $\left(x, y, \frac{(xy+1)^3}{x^4y^2z}\right)$ 1203: $\left(x, y, \frac{z(xy+1)}{xy}\right)$
1280	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	826: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xy+1}{x^2y^2z}\right)$

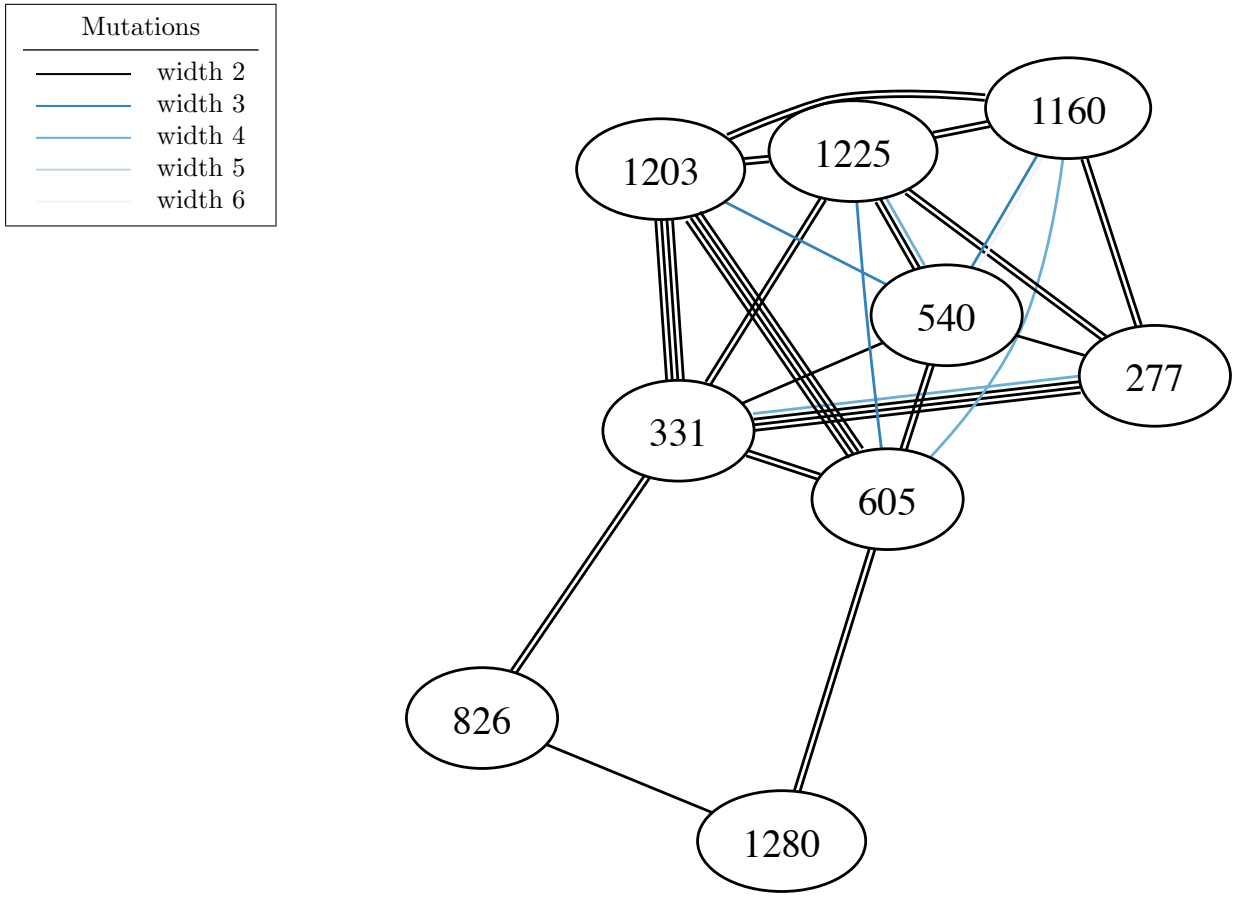

FIGURE 77B. All mutations between Minkowski polynomials in bucket 77

Bucket 78

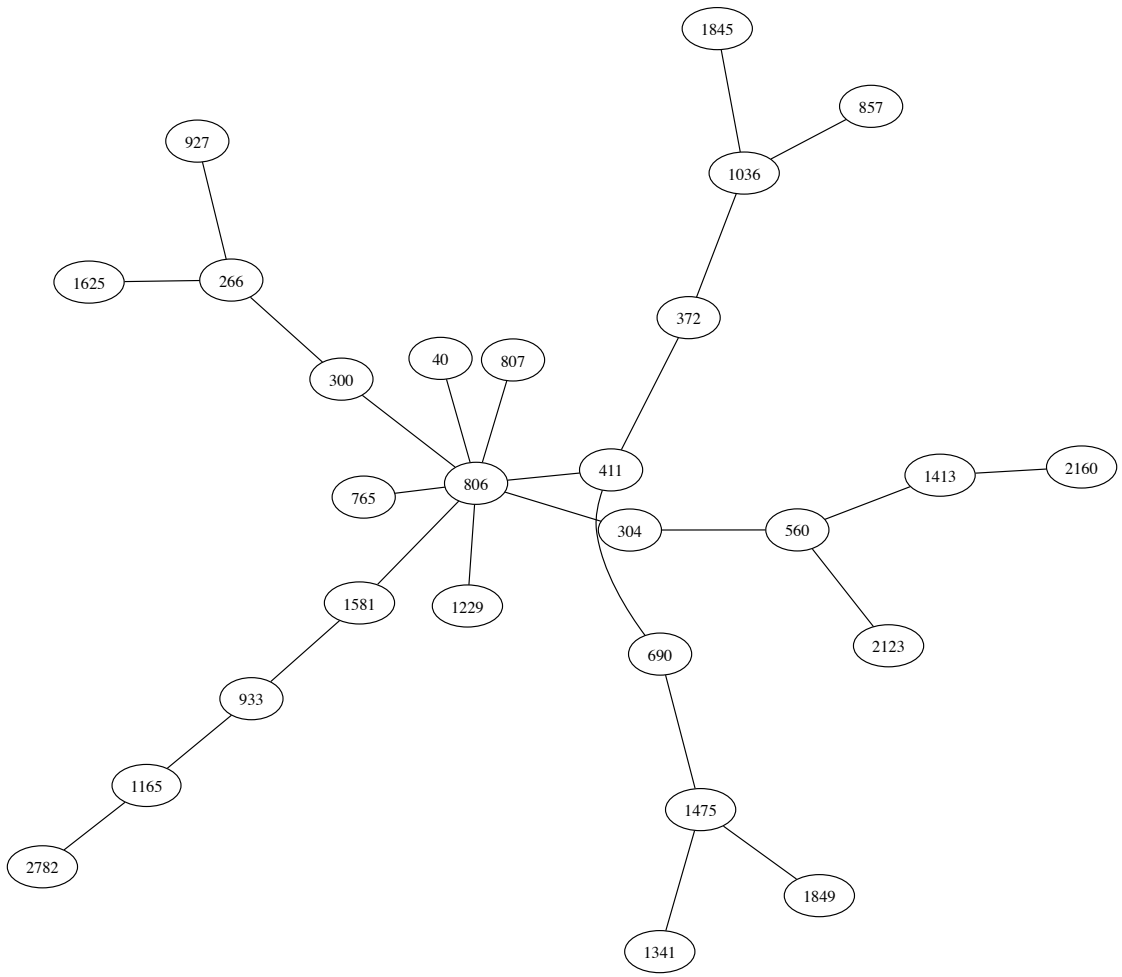

Figure 78a. Selected width-2 mutations between Minkowski polynomials in bucket 78

Table 78. Laurent polynomials and selected mutations for bucket 78.

Node	Laurent polynomial	Mutations from Figure 78a
40	$x^2y + 2xy + x + y + z + \frac{2}{xy} + \frac{1}{x^2y^2z}$	806: $\left(y, \frac{x}{(y+1)^2}, \frac{(y+1)^2}{x^2z}\right)$
266	$x + \frac{x}{y} + y + z + \frac{2}{y} + \frac{1}{y^2z} + \frac{2}{x} + \frac{2}{xyz} + \frac{1}{x^2z}$	300: $\left(x, y, \frac{x+y}{xy^2z}\right)$ 927: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$ 1625: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
300	$x + \frac{x}{y} + y + z + \frac{2}{y} + \frac{1}{y^2z} + \frac{yz}{x} + \frac{2}{x} + \frac{1}{xyz}$	266: $\left(x, y, \frac{x+y}{xy^2z}\right)$ 806: $\left(\frac{(y+1)(xz+y)^2}{x^2yz}, \frac{(y+1)(xz+y)^2}{x^2y^2z}, \frac{xy^3}{(y+1)(xz+y)^2}\right)$
304	$x + y + z + \frac{z}{y} + \frac{2}{y} + \frac{1}{yz} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz}$	560: $\left(x, y, \frac{x}{z(xy+x+y)}\right)$ 806: $\left(\frac{xy}{xz+y}, \frac{x^2z}{xz+y}, y\right)$
372	$x + yz + y + z + \frac{1}{z} + \frac{1}{y} + \frac{yz}{x} + \frac{2}{x} + \frac{1}{xyz}$	411: $\left(\frac{yz+1}{z}, x, \frac{yz}{x}\right)$ 1036: $\left(x, \frac{xy+1}{xyz}, y\right)$
411	$x + \frac{x}{yz} + yz + y + z + \frac{1}{z} + \frac{1}{y} + \frac{yz}{x} + \frac{1}{x}$	372: $\left(y, \frac{xyz}{yz+1}, \frac{yz+1}{x}\right)$ 690: $\left(z, y, \frac{y+z}{xy}\right)$ 806: $\left(\frac{x^2yz}{(y+1)(xz+y)}, \frac{xy^2}{(y+1)(xz+y)}, \frac{(y+1)(xz+y)}{xy}\right)$
560	$x + y + z + \frac{z}{y} + \frac{2}{y} + \frac{1}{yz} + \frac{yz}{x} + \frac{2z}{x} + \frac{2}{x} + \frac{yz}{x^2}$	304: $\left(x, y, \frac{x}{z(xy+x+y)}\right)$ 1413: $\left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$ 2123: $\left(y, \frac{xy^2}{y^2+yz+z}, z\right)$
690	$x + y + z + \frac{1}{z} + \frac{1}{y} + \frac{y}{x} + \frac{y}{xz} + \frac{z}{x} + \frac{2}{x} + \frac{z}{xy}$	411: $\left(\frac{x+y}{yz}, y, x\right)$ 1475: $\left(y, z, \frac{y+z}{xy}\right)$
765	$x + y + z + \frac{2y}{x} + \frac{4}{x} + \frac{2}{xy} + \frac{y^2}{x^2z} + \frac{4y}{x^2z} + \frac{6}{x^2z} + \frac{4}{x^2yz} + \frac{1}{x^2y^2z}$	806: $\left(x, y, \frac{(y+1)^2}{x^2z}\right)$

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Table 78 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 78a
806	$x+y+z+\frac{2z}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	$40\colon \left(y(x+1)^2, x, \frac{1}{y^2z(x+1)^2}\right)$ $300\colon \left(\frac{(yz+1)^2(x+y)}{xy^2z}, \frac{x}{y}, \frac{x^2}{(yz+1)^2(x+y)}\right)$ $304\colon \left(x+y, z, \frac{yz}{x(x+y)}\right)$ $411\colon \left(\frac{(yz+1)(x+y)}{yz}, yz, \frac{xyz^2}{(yz+1)(x+y)}\right)$ $765\colon \left(x, y, \frac{(y+1)^2}{x^2z}\right)$ $807\colon \left(x, y, \frac{y(y+1)}{x^2z}\right)$ $1229\colon \left(x, y+z, \frac{z(y+z)}{xy}\right)$ $1581\colon \left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{(xyz+1)^2}{x^4y^3z^2}\right)$
807	$x+y+z+\frac{z}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	$806\colon \left(x, y, \frac{y(y+1)}{x^2z}\right)$
857	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	$1036\colon \left(\frac{xz+1}{z}, \frac{xyz}{xz+1}, \frac{xz^2}{xz+1}\right)$
927	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	$266\colon \left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$
933	$x+\frac{xz}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$1165\colon \left(y, x, \frac{xz}{x+y+1}\right)$ $1581\colon \left(\frac{x^2y^2z+(xyz+1)^2}{x^2yz}, \frac{x^3y^2z}{x^2y^2z+(xyz+1)^2}, \frac{x^3y^2z^2}{x^2y^2z+(xyz+1)^2}\right)$
1036	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	$372\colon \left(x, z, \frac{xz+1}{xyz}\right)$ $857\colon \left(\frac{x^2z}{xz+1}, \frac{y(xz+1)}{xz}, \frac{xz+1}{x}\right)$ $1845\colon \left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
1165	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$933\colon \left(y, x, \frac{z(x+y+1)}{y}\right)$ $2782\colon \left(\frac{(xyz+y+1)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+y+1)^2}\right)$
1229	$x+y+z+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	$806\colon \left(x, \frac{y^2}{xz+y}, \frac{xyz}{xz+y}\right)$
1341	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz^2}+\frac{1}{x^3z^2}$	$1475\colon \left(\frac{xy+1}{x}, \frac{z(xy+1)}{xy}, \frac{x^2y}{xy+1}\right)$

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Table 78 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 78a
1413	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	560: $\left(y, \frac{x+yz}{xyz}, \frac{x+yz}{x^2}\right)$ 2160: $\left(\frac{(xz+1)^2}{x^2z}, \frac{x^3z^2}{(xz+1)^2}, y\right)$
1475	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	690: $\left(\frac{x+y}{xz}, x, y\right)$ 1341: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{xyz}{xz+1}\right)$ 1849: $\left(x, y, \frac{xy^2}{z(y+1)(xy+1)}\right)$
1581	$x+yz^2+2yz+y+z+\frac{4z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{4}{x^3y^2z}+\frac{1}{x^4y^3z^2}$	806: $\left(x, \frac{(xz+y)^2}{x^2y^2z}, \frac{y^3}{(xz+y)^2}\right)$ 933: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{z}{y}\right)$
1625	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	266: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
1845	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1036: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
1849	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2y^2}+\frac{z}{x^2y^3}$	1475: $\left(x, y, \frac{xy^2}{z(y+1)(xy+1)}\right)$
2123	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	560: $\left(\frac{y(x^2+xz+z)}{x^2}, x, z\right)$
2160	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	1413: $\left(\frac{(xy+1)^2}{x^2y}, z, \frac{x^3y^2}{(xy+1)^2}\right)$
2782	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1165: $\left(\frac{(xyz+y+1)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+y+1)^2}\right)$

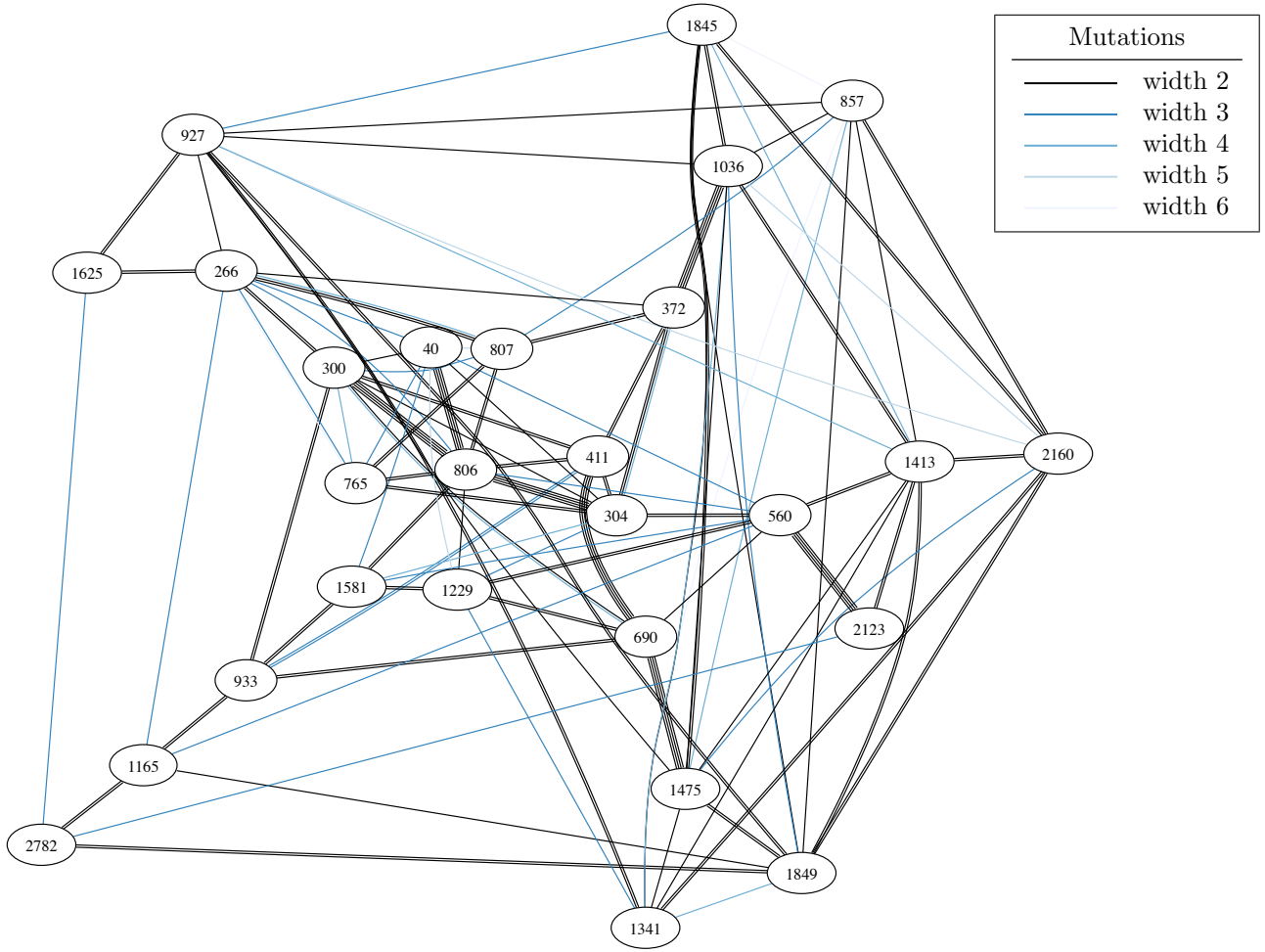
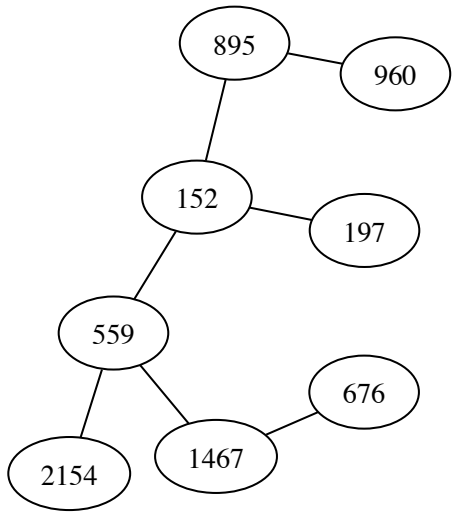
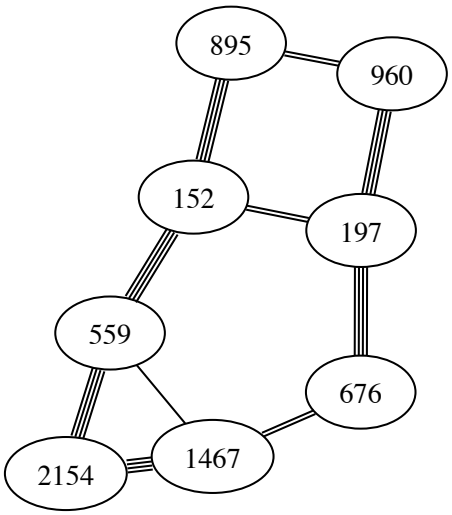


FIGURE 78B. All mutations between Minkowski polynomials in bucket 78

Bucket 79



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 79. Mutations between Minkowski polynomials in bucket 79

Table 79. Laurent polynomials and selected mutations for bucket 79.

Node	Laurent polynomial	Mutations from Figure 79a
152	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}$	197: $\left(x, \frac{y(x+1)}{x}, z\right)$ 559: $\left(\frac{xy}{y+1}, y, \frac{y+1}{x^2yz}\right)$ 895: $\left(y, \frac{x^2y^2z}{xy^2z+1}, \frac{xy^2z+1}{xy^2}\right)$
197	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{x^2z}$	152: $\left(x, \frac{xy}{x+1}, z\right)$
559	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	152: $\left(\frac{x(y+1)}{y}, y, \frac{y}{x^2z(y+1)}\right)$ 1467: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$ 2154: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{x}{x^2yz+(xz+1)^2}\right)$
676	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1467: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, z\right)$
895	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	152: $\left(\frac{x^2yz+1}{x^2z}, x, \frac{x^2yz^2}{x^2yz+1}\right)$ 960: $\left(x, y, \frac{y+1}{x^2y^2z}\right)$
960	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}$	895: $\left(x, y, \frac{y+1}{x^2y^2z}\right)$
1467	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{2y}{x^2}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	559: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xyz}{xy+1}\right)$ 676: $\left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, z\right)$
2154	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{5}{x^2y}+\frac{1}{x^2yz}+\frac{z}{x^2y^2}+\frac{2}{x^3yz}+\frac{2}{x^3y^2}+\frac{1}{x^4y^2z}$	559: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{x}{x^2yz+(xz+1)^2}\right)$

Bucket 80

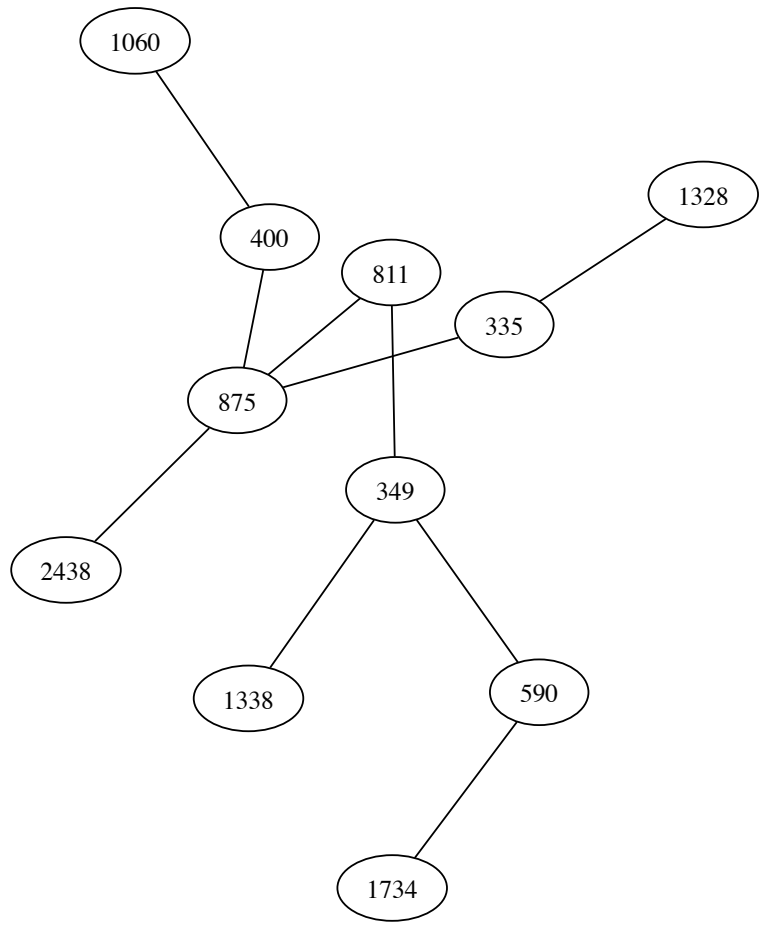


Figure 80a. Selected width-2 mutations between Minkowski polynomials in bucket 80

Table 80. Laurent polynomials and selected mutations for bucket 80.

Node	Laurent polynomial	Mutations from Figure 80a
335	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	875: $\left(\frac{(xz+1)(xyz+y+1)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+y+1)}\right)$ 1328: $\left(y, \frac{x^2y^2z}{xy^2z+1}, \frac{xy^2z+1}{xy^2}\right)$
349	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}$	590: $\left(\frac{xyz+(xz+1)^2}{x^2z}, \frac{x^3z^2}{xyz+(xz+1)^2}, y\right)$ 811: $\left(y, \frac{xy^2z+(y+1)^2}{xy^2}, \frac{xy^2z+(y+1)^2}{x^2y^2z}\right)$ 1338: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{xz+y(xz+1)^2}, \frac{xz+y(xz+1)^2}{x^2z}\right)$
400	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	875: $\left(y, \frac{x^2yz}{xyz+y+1}, \frac{xy}{xyz+y+1}\right)$ 1060: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, y\right)$
590	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	349: $\left(\frac{xyz+(xy+1)^2}{x^2y}, z, \frac{x^3y^2}{xyz+(xy+1)^2}\right)$ 1734: $\left(\frac{x^2z^2+y(xz+1)^3}{x^3yz^2}, \frac{x^2z^2+y(xz+1)^3}{x^3z^2}, \frac{x^4yz^3}{x^2z^2+y(xz+1)^3}\right)$
811	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	349: $\left(\frac{x^2y+z(x+1)^2}{x^2yz}, x, \frac{x^2y^2}{x^2y+z(x+1)^2}\right)$ 875: $\left(x, y, \frac{(y+1)^2}{x^2y^2z}\right)$
875	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	335: $\left(\frac{(xz+1)(xyz+y+1)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+y+1)}\right)$ 400: $\left(\frac{xy+xz+z}{x}, x, \frac{xy}{z(xy+xz+z)}\right)$ 811: $\left(x, y, \frac{(y+1)^2}{x^2y^2z}\right)$ 2438: $\left(\frac{x^4y^2z}{1+xz(xy+1)^2}, \frac{1+xz(xy+1)^2}{x^3yz}, \frac{1+xz(xy+1)^2}{x^3y^2}\right)$
1060	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	400: $\left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$
1328	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	335: $\left(\frac{x^2yz+1}{x^2z}, x, \frac{x^2yz^2}{x^2yz+1}\right)$
1338	$x+yz+y+z+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	349: $\left(\frac{x^2y+z(xy+1)^2}{x^2yz}, \frac{z}{x}, \frac{x^3y^2z}{x^2y+z(xy+1)^2}\right)$
1734	$x+yz+y+z+\frac{3y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	590: $\left(\frac{x^3z^2+y(xz+1)^3}{x^3yz^2}, \frac{y}{x}, \frac{x^4yz^3}{x^3z^2+y(xz+1)^3}\right)$

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Table 80 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 80a
2438	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^2y^2}+\frac{3}{x^3yz}+\frac{3}{x^3y^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	875: $\left(\frac{1+xz(xy+1)^2}{x^2y^2z}, \frac{x^3y^3z}{1+xz(xy+1)^2}, \frac{x^3y^2z^2}{1+xz(xy+1)^2}\right)$

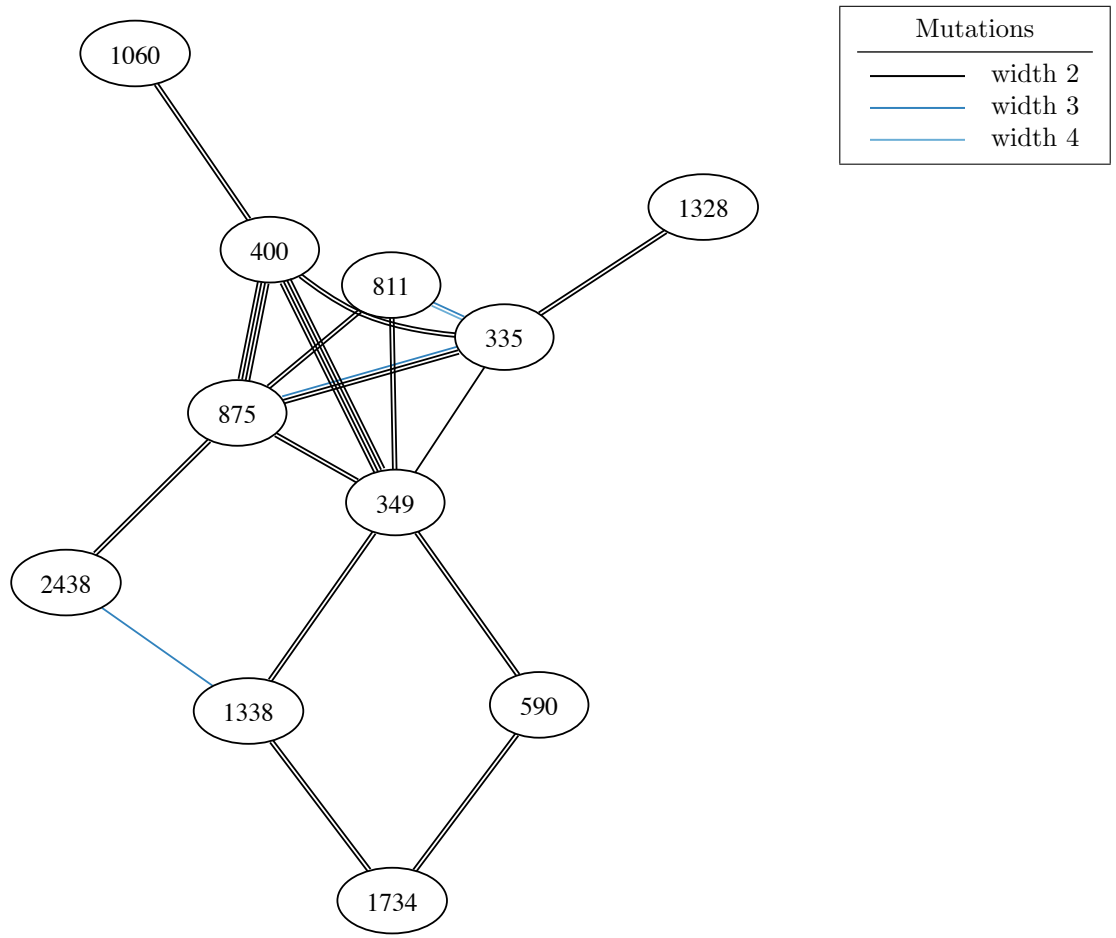

FIGURE 80B. All mutations between Minkowski polynomials in bucket 80

Bucket 81

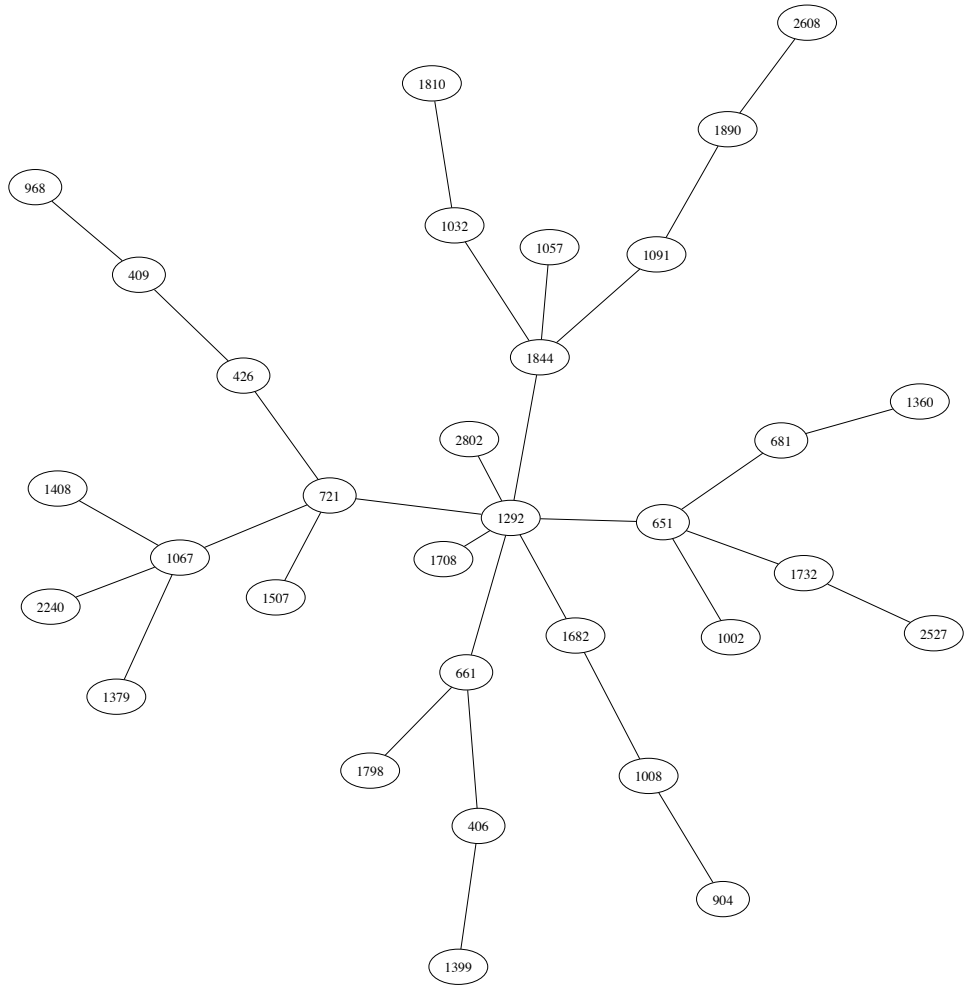

Figure 81a. Selected width-2 mutations between Minkowski polynomials in bucket 81

Table 81. Laurent polynomials and selected mutations for bucket 81.

Node	Laurent polynomial	Mutations from Figure 81a
406	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{y}{x^2z}+\frac{1}{x^2z}$	$661\colon \left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$ $1399\colon \left(y, \frac{y+z+1}{x}, \frac{y+z+1}{xy^2z}\right)$
409	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	$426\colon \left(\frac{z(y+1)}{y}, x, y\right)$ $968\colon \left(y, \frac{yz+y+1}{xyz}, \frac{yz+y+1}{xy}\right)$
426	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}$	$409\colon \left(y, z, \frac{xz}{z+1}\right)$ $721\colon \left(y, \frac{z+1}{x}, z\right)$
651	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	$681\colon \left(\frac{x+y}{xy}, \frac{z(x+y)}{x}, \frac{x^2}{x+y}\right)$ $1002\colon \left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$ $1292\colon \left(y, \frac{x^2y^2z}{(y+1)(xyz+y+1)}, \frac{(y+1)(xyz+y+1)}{xy^2}\right)$ $1732\colon \left(\frac{(xz+1)(xyz+y+1)}{x^2yz}, \frac{(xz+1)(xyz+y+1)}{x^2z}, \frac{x^3yz^2}{(xz+1)(xyz+y+1)}\right)$
661	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$406\colon \left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$ $1292\colon \left(\frac{xy}{y+1}, y, \frac{z(y+1)}{y}\right)$ $1798\colon \left(y, \frac{1+z(y+1)^2}{xyz}, \frac{x}{1+z(y+1)^2}\right)$
681	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	$651\colon \left(\frac{xz+1}{x}, \frac{xz+1}{x^2z}, \frac{xyz}{xz+1}\right)$ $1360\colon \left(y, \frac{xy^2z}{y^2+z(y+1)^2}, \frac{y^2+z(y+1)^2}{xy^2}\right)$
721	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$426\colon \left(\frac{z+1}{y}, x, z\right)$ $1067\colon \left(x, \frac{1}{z}, \frac{xy}{x+z+1}\right)$ $1292\colon \left(y, \frac{(y+1)(xz+1)}{xy}, \frac{(y+1)(xz+1)}{x^2yz}\right)$ $1507\colon \left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, y\right)$
904	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	$1008\colon \left(x, y, \frac{(y+1)^2}{x^2yz}\right)$
968	$x+y+z+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$409\colon \left(\frac{xy+xz+y}{xyz}, x, \frac{z}{y}\right)$

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Table 81 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 81a
1002	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	651: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
1008	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	904: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$ 1682: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, z\right)$
1032	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	1810: $\left(x, \frac{x^2yz}{1+z(x+1)^2}, z\right)$ 1844: $\left(x, \frac{y(xz+1)}{xz}, \frac{y(xz+1)}{x}\right)$
1057	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1844: $\left(x, \frac{y(xz+1)(xz+x+1)}{x^2z}, z\right)$
1067	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	721: $\left(x, \frac{z(xy+y+1)}{xy}, \frac{1}{y}\right)$ 1379: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+y+1)}, y\right)$ 1408: $\left(\frac{x}{z+1}, \frac{z+1}{y}, \frac{xz}{z+1}\right)$ 2240: $\left(\frac{x^2z}{(y+1)(xz+1)}, \frac{(y+1)(xz+1)}{x}, \frac{x^2yz}{(y+1)(xz+1)}\right)$
1091	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1844: $\left(x, \frac{x^2z}{y(x+1)(xz+1)}, \frac{x}{y(x+1)(xz+1)}\right)$ 1890: $\left(x, \frac{xyz}{xz+z+1}, z\right)$
1292	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	651: $\left(\frac{(x+1)(xyz+x+1)}{x^2z}, x, \frac{x^2yz^2}{(x+1)(xyz+x+1)}\right)$ 661: $\left(\frac{x(y+1)}{y}, y, \frac{yz}{y+1}\right)$ 721: $\left(\frac{(y+z)(x+1)}{xyz}, x, \frac{xy^2}{(y+z)(x+1)}\right)$ 1682: $\left(\frac{x^3z}{x^2z+xyz+y}, \frac{x^2z+xyz+y}{x^2yz}, \frac{x^2z+xyz+y}{x^2}\right)$ 1708: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$ 1844: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$ 2802: $\left(\frac{x^4y^2z}{(xy+1)(x^2yz+xz+1)}, \frac{(xy+1)(x^2yz+xz+1)}{x^3yz}, \frac{(xy+1)(x^2yz+xz+1)}{x^3y^2}\right)$
1360	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	681: $\left(\frac{x^2+yz(x+1)^2}{x^2z}, x, yz\right)$
1379	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1067: $\left(\frac{(xy+1)(xy+z+1)}{x^2y}, z, \frac{x^3y^2}{(xy+1)(xy+z+1)}\right)$

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Table 81 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 81a
1399	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$406\colon \left(\frac{x^3z+x^2z+y}{x^2yz}, x, \frac{y}{x^2z}\right)$
1408	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	$1067\colon \left(x+z, \frac{x+z}{xy}, \frac{z}{x}\right)$
1507	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$721\colon \left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$
1682	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{3y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{3y}{x^3z}+\frac{y}{x^4z^2}$	$1008\colon \left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, z\right)$ $1292\colon \left(\frac{x^2yz+xz+1}{xyz}, \frac{x^2yz+xz+1}{x^2y^2z}, \frac{x^2yz^2}{x^2yz+xz+1}\right)$
1708	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$1292\colon \left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$
1732	$x+yz+y+z+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	$651\colon \left(\frac{(xz+1)(xyz+x+y)}{x^2yz}, \frac{y}{x}, \frac{x^3yz^2}{(xz+1)(xyz+x+y)}\right)$ $2527\colon \left(x, \frac{y(xz+1)^2}{x^2z^2}, z\right)$
1798	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$661\colon \left(\frac{xyz+(x+1)^2}{xy}, x, \frac{1}{xyz}\right)$
1810	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	$1032\colon \left(x, \frac{y(1+z(x+1)^2)}{x^2z}, z\right)$
1844	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z}$	$1032\colon \left(x, \frac{xyz}{xz+y}, \frac{z}{y}\right)$ $1057\colon \left(x, \frac{x^2yz}{(xz+1)(xz+x+1)}, z\right)$ $1091\colon \left(x, \frac{x}{(y+z)(x+1)}, \frac{y}{xz}\right)$ $1292\colon \left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xyz}{xy+1}\right)$
1890	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	$1091\colon \left(x, \frac{y(xz+z+1)}{xz}, z\right)$ $2608\colon \left(\frac{(xy+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+(z+1)^2)}, z\right)$
2240	$x+yz+y+z+\frac{3y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	$1067\colon \left(\frac{(x+z)(xy+1)}{xy}, \frac{z}{x}, \frac{x^2y^2}{(x+z)(xy+1)}\right)$
2527	$x+yz+y+z+\frac{4y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{4y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	$1732\colon \left(x, \frac{x^2yz^2}{(xz+1)^2}, z\right)$

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Table 81 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 81a
2608	$x+y+z+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	$1890\colon \left(\frac{(xy+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+(z+1)^2)}, z\right)$
2802	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{2}{x^2z}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^2y^2}+\frac{5}{x^3yz}+\frac{3}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	$1292\colon \left(\frac{(xy+1)(x^2yz+xz+1)}{x^2y^2z}, \frac{x^3y^3z}{(xy+1)(x^2yz+xz+1)}, \frac{x^3y^2z^2}{(xy+1)(x^2yz+xz+1)}\right)$

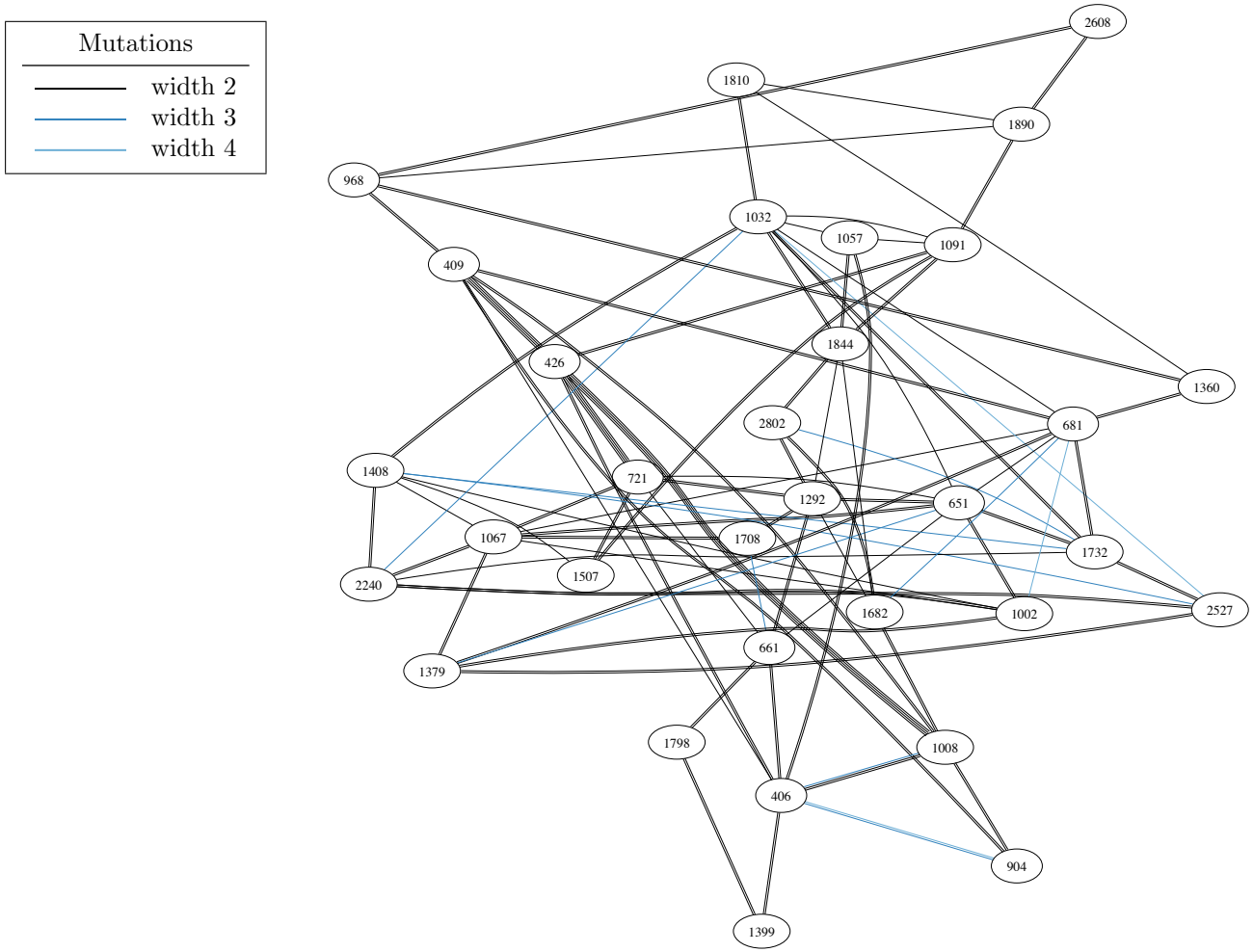

FIGURE 81B. All mutations between Minkowski polynomials in bucket 81

Bucket 82

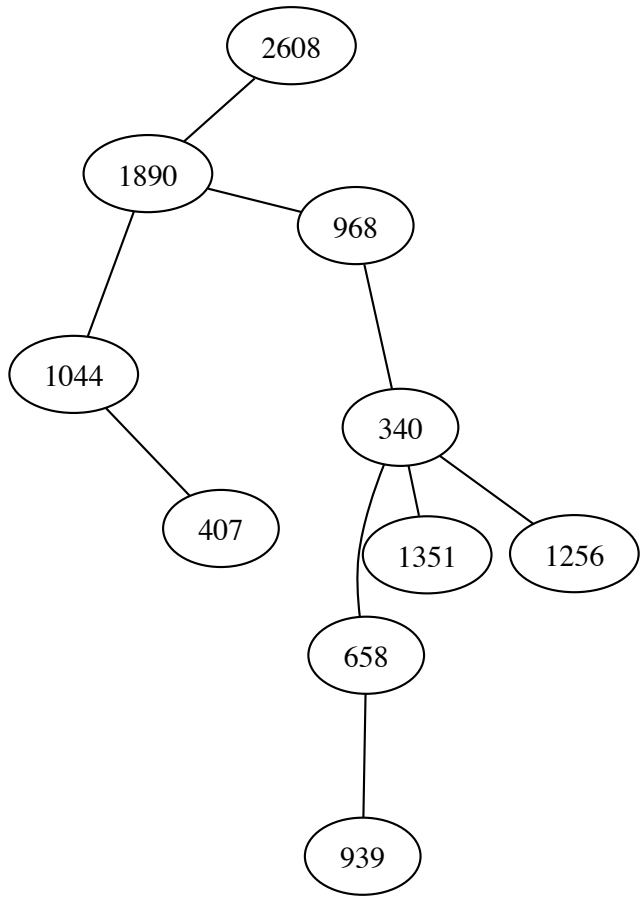

Figure 82a. Selected width-2 mutations between Minkowski polynomials in bucket 82

Table 82. Laurent polynomials and selected mutations for bucket 82.

Node	Laurent polynomial	Mutations from Figure 82a
340	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$658\colon \left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ $968\colon \left(y, \frac{z+y(z+1)^2}{xyz}, z\right)$ $1256\colon \left(\frac{x^2y^2z}{xy^2z+y+1}, y, \frac{xy}{xy^2z+y+1}\right)$ $1351\colon \left(\frac{x^2yz}{xyz+1}, y, \frac{xyz+1}{xy}\right)$
407	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{x^2z}$	$1044\colon \left(\frac{xy}{y+1}, \frac{x}{y+1}, \frac{y+1}{xyz}\right)$
658	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$340\colon \left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ $939\colon \left(x, \frac{xz+(x+1)^2}{xy}, \frac{1}{x^2z}\right)$
939	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	$658\colon \left(x, \frac{1+xz(x+1)^2}{x^2yz}, \frac{1}{x^2z}\right)$
968	$x+y+z+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$340\colon \left(\frac{z+x(z+1)^2}{xyz}, x, z\right)$ $1890\colon \left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, z\right)$
1044	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$407\colon \left(x+y, \frac{x}{y}, \frac{1}{xz}\right)$ $1890\colon \left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
1256	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	$340\colon \left(\frac{xy+yz+z}{y}, y, \frac{x}{z(xy+yz+z)}\right)$
1351	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$340\colon \left(\frac{xyz+1}{yz}, y, \frac{xyz^2}{xyz+1}\right)$
1890	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	$968\colon \left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, z\right)$ $1044\colon \left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ $2608\colon \left(\frac{(xy+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+(z+1)^2)}, z\right)$
2608	$x+y+z+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2z}{x^2y}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	$1890\colon \left(\frac{(xy+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+1)(xyz+(z+1)^2)}, z\right)$

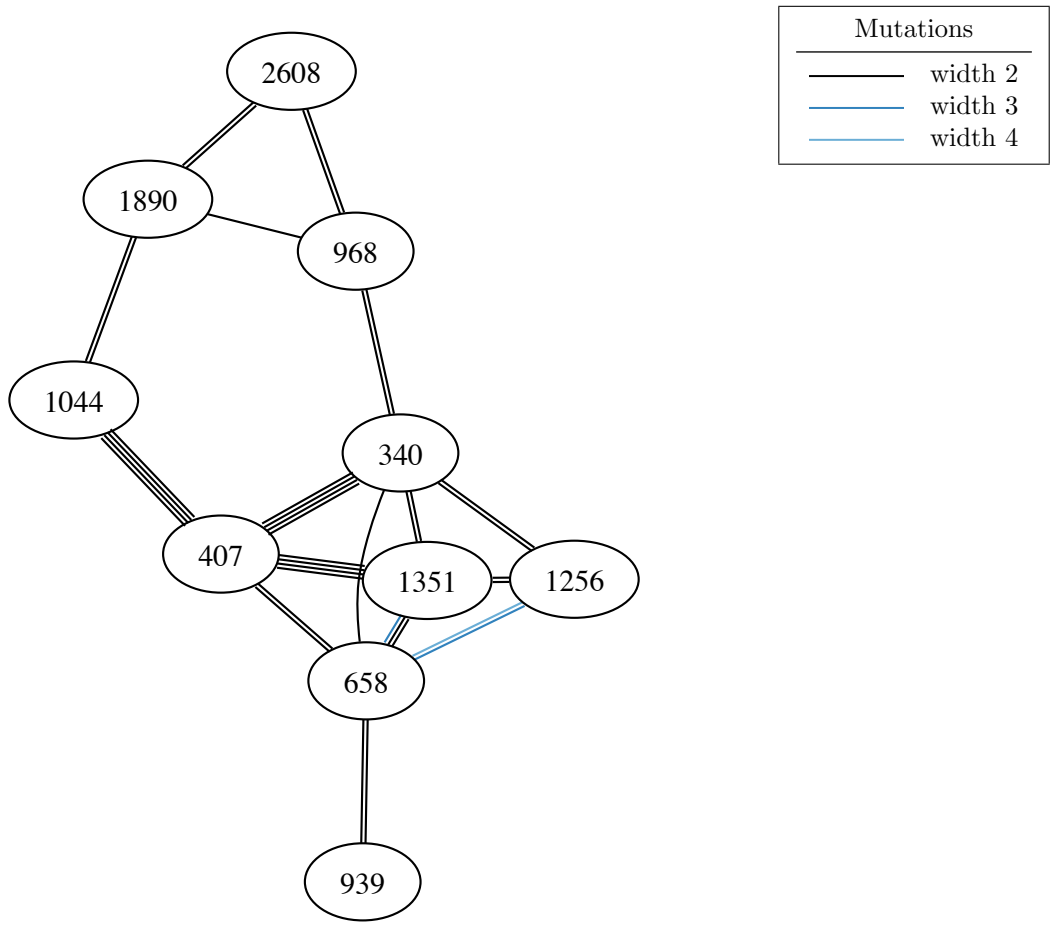

Figure 82b. All mutations between Minkowski polynomials in bucket 82

Bucket 83

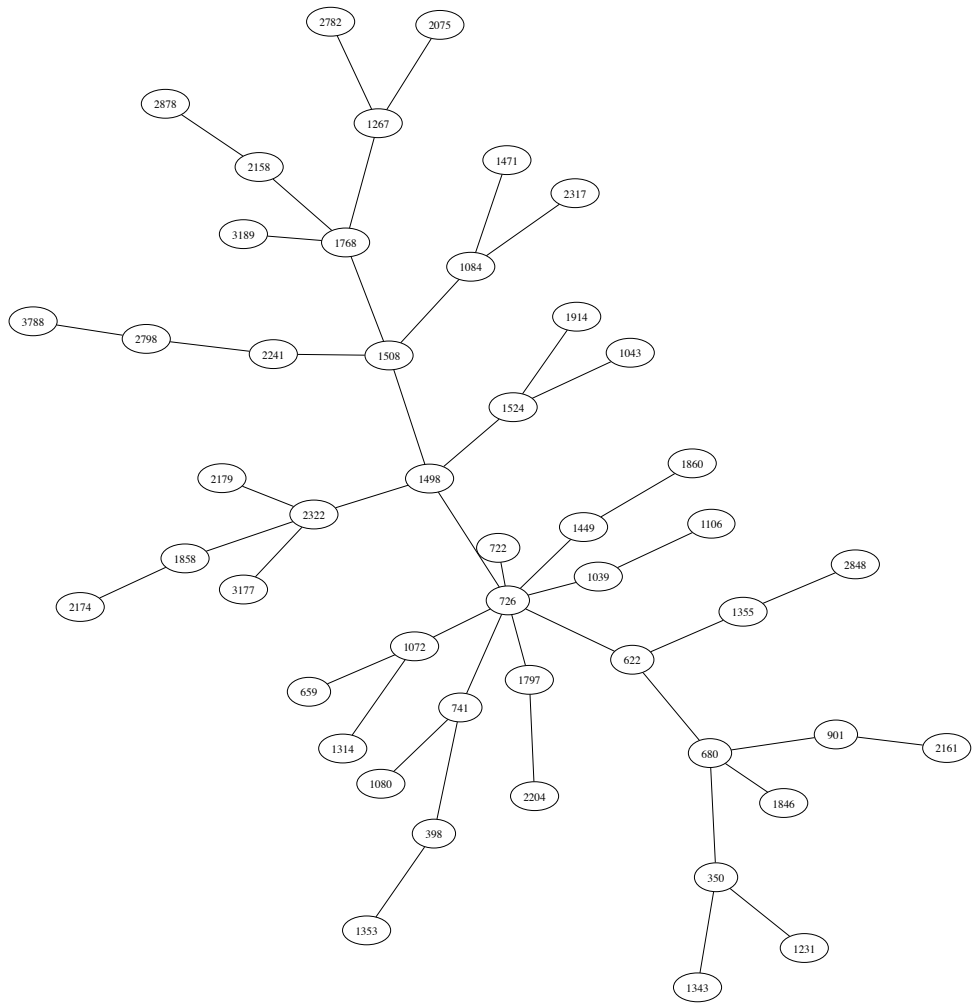

Figure 83a. Selected width-2 mutations between Minkowski polynomials in bucket 83

Table 83. Laurent polynomials and selected mutations for bucket 83.

Node	Laurent polynomial	Mutations from Figure 83a
350	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{x^2z}$	680: $\left(\frac{x+y}{xy},\frac{1}{z},\frac{x^2}{x+y}\right)$ 1231: $\left(y,\frac{x^2y^2z}{xy^2z+(y+1)^2},\frac{xy^2z+(y+1)^2}{xy^2}\right)$ 1343: $\left(\frac{xyz+(xz+1)^2}{x^2z},\frac{xyz+(xz+1)^2}{x^2yz},\frac{x^3z^2}{xyz+(xz+1)^2}\right)$
398	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}$	741: $\left(x,y+z,\frac{y}{z}\right)$ 1353: $\left(\frac{x^2yz}{xyz+y+1},y,\frac{xy}{xyz+y+1}\right)$
622	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	680: $\left(x,\frac{xy+xz+y}{x},\frac{z}{y}\right)$ 726: $\left(\frac{x+1}{y},x,\frac{xz}{x+1}\right)$ 1355: $\left(y,\frac{xy}{y+1},z\right)$
659	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1072: $\left(x,\frac{x+1}{y},z\right)$
680	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	350: $\left(\frac{xz+1}{x},\frac{xz+1}{x^2z},\frac{1}{y}\right)$ 622: $\left(x,\frac{xy}{xz+x+1},\frac{xyz}{xz+x+1}\right)$ 901: $\left(\frac{(xz+1)(xyz+xz+1)}{x^2z},\frac{(xz+1)(xyz+xz+1)}{x^3z^2},y\right)$ 1846: $\left(\frac{x^2yz^2+(xyz+1)^2}{x^2yz},\frac{x^2yz^2+(xyz+1)^2}{x^3y^2z^2},\frac{x^2yz^2+(xyz+1)^2}{x^3yz^2}\right)$
722	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	726: $\left(\frac{xz+y+1}{x},\frac{1}{y},\frac{x^2z}{xz+y+1}\right)$

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Table 83 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 83a
726	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	$622\colon \left(y, \frac{y+1}{x}, \frac{z(y+1)}{y}\right)$ $722\colon \left(\frac{xyz+y+1}{xy}, \frac{1}{y}, \frac{x^2yz}{xyz+y+1}\right)$ $741\colon \left(\frac{x+y}{xy}, \frac{1}{z}, \frac{x^2}{x+y}\right)$ $1039\colon \left(y, \frac{xy}{y+z+1}, \frac{1}{yz}\right)$ $1072\colon \left(y, \frac{xyz+1}{x^2z}, \frac{xyz+1}{xy}\right)$ $1449\colon \left(\frac{(xz+1)(xz+y+1)}{x^2z}, y, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$ $1498\colon \left(\frac{yz+(z+1)^2}{xz}, \frac{yz+(z+1)^2}{xyz}, \frac{x}{yz+(z+1)^2}\right)$ $1797\colon \left(y, \frac{(y+1)(xyz+1)}{x^2yz}, \frac{(y+1)(xyz+1)}{xy^2}\right)$
741	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	$398\colon \left(x, \frac{y}{z+1}, \frac{yz}{z+1}\right)$ $726\colon \left(\frac{xz+1}{x}, \frac{xz+1}{x^2z}, \frac{1}{y}\right)$ $1080\colon \left(y, \frac{xy}{(z+1)(y+1)}, \frac{xyz}{(z+1)(y+1)}\right)$
901	$x+yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	$680\colon \left(\frac{(x+y)(xz+x+y)}{x^2y}, z, \frac{x^3}{(x+y)(xz+x+y)}\right)$ $2161\colon \left(\frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^3yz^2+(xz+1)^3}{x^4yz^2}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$
1039	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	$726\colon \left(\frac{y(x^2z+xz+1)}{x^2z}, x, \frac{1}{xz}\right)$ $1106\colon \left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$
1043	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1524\colon (x, y, z(y+1))$
1072	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$659\colon \left(x, \frac{x+1}{y}, z\right)$ $726\colon \left(\frac{x^2z+y}{xyz}, x, \frac{x^2z^2}{x^2z+y}\right)$ $1314\colon \left(x, \frac{(x+1)(x+yz+1)}{xy}, \frac{1}{xyz}\right)$
1080	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$741\colon \left(\frac{(y+z)(x+1)}{x}, x, \frac{z}{y}\right)$

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Table 83 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 83a
1084	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}$	1471: $\left(x, y, \frac{xy}{z(xy+x+1)}\right)$ 1508: $\left(\frac{xz+x+y}{xy}, \frac{x^2}{xz+x+y}, \frac{x^2z}{xz+x+y}\right)$ 2317: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{xz+y(xz+1)^2}, y\right)$
1106	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1039: $\left(x, \frac{z+1}{yz}, \frac{z+1}{y}\right)$
1231	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	350: $\left(\frac{x^2yz+(x+1)^2}{x^2z}, x, \frac{x^2yz^2}{x^2yz+(x+1)^2}\right)$
1267	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1768: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{xyz}, \frac{xz+1}{x}\right)$ 2075: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}, \frac{1}{y}\right)$ 2782: $\left(y, \frac{x^3y^2z^2}{xy^2z+(xyz+1)^2}, \frac{xy^2z+(xyz+1)^2}{x^2y^2z}\right)$
1314	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{1}{x^2y}$	1072: $\left(x, \frac{(x+1)(x^2z+xz+1)}{x^2yz}, \frac{xy}{(x+1)(x^2z+xz+1)}\right)$
1343	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	350: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x}{y}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$
1353	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	398: $\left(\frac{xy+yz+z}{y}, y, \frac{xy}{z(xy+yz+z)}\right)$
1355	$x+y+z+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	622: $\left(\frac{y(x+1)}{x}, x, z\right)$ 2848: $\left(\frac{x^3y^2z}{1+z(xy+1)^2}, \frac{1+z(xy+1)^2}{x^2yz}, z\right)$
1449	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	726: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, y, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$ 1860: $\left(x, y, \frac{xy+(y+1)^2}{x^2yz}\right)$
1471	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1084: $\left(x, y, \frac{xy}{z(xy+x+1)}\right)$
1498	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	726: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x}{y}, \frac{1}{xz}\right)$ 1508: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$ 1524: $\left(x, \frac{yz+1}{y}, yz\right)$ 2322: $\left(x, \frac{(z+1)(xz+z+1)}{xyz}, z\right)$

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Table 83 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 83a
1508	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	1084: $\left(\frac{xy+xz+1}{x}, \frac{xy+xz+1}{x^2y}, \frac{z}{y}\right)$ 1498: $\left(x, \frac{xyz}{xz+z+1}, z\right)$ 1768: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 2241: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, z\right)$
1524	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1043: $\left(x, y, \frac{z}{y+1}\right)$ 1498: $\left(x, \frac{y}{z+1}, z\right)$ 1914: $\left(x, \frac{1}{y}, \frac{xyz}{(y+1)(x+1)}\right)$
1768	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	1267: $\left(\frac{xz+1}{z}, \frac{xz+1}{xyz}, \frac{xz^2}{xz+1}\right)$ 1508: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 2158: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^2z+y(xz+1)^2}{x^3yz^2}, \frac{x^3z}{x^2z+y(xz+1)^2}\right)$ 3189: $\left(\frac{x^3yz}{x^2yz+xy+1}, \frac{x^2y}{x^2yz+xy+1}, \frac{x^2yz+xy+1}{x^2z}\right)$
1797	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	726: $\left(\frac{(x+1)(x^2z+y)}{x^2yz}, x, \frac{x^3z^2}{(x+1)(x^2z+y)}\right)$ 2204: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$
1846	$x+yz+y+z+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	680: $\left(\frac{x^2y+z(x+y)^2}{x^2yz}, \frac{z}{y}, \frac{x^3y}{x^2y+z(x+y)^2}\right)$
1858	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2174: $\left(x, y, \frac{y^2}{z(y+1)(xy+y+1)}\right)$ 2322: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, z\right)$
1860	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1449: $\left(x, y, \frac{xy+(y+1)^2}{x^2yz}\right)$
1914	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1524: $\left(x, \frac{1}{y}, \frac{z(y+1)(x+1)}{x}\right)$
2075	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1267: $\left(\frac{(xyz+z+1)^2}{x^2yz^2}, \frac{1}{z}, \frac{x^3y^2z^2}{(xyz+z+1)^2}\right)$
2158	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	1768: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^2yz+(x+y)^2}{x^3yz}, \frac{x^3}{x^2yz+(x+y)^2}\right)$ 2878: $\left(x, \frac{x^4z^2}{y(x^2z+xz+1)^2}, z\right)$

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Table 83 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 83a
2161	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	901: $\left(\frac{x^3z^2+y(xz+1)^3}{x^3yz^2}, \frac{x^4z^2}{x^3z^2+y(xz+1)^3}, \frac{x^4yz^3}{x^3z^2+y(xz+1)^3}\right)$
2174	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	1858: $\left(x, y, \frac{y^2}{z(y+1)(xy+y+1)}\right)$
2179	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^4yz^2}$	2322: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{x^2yz}{xyz+(z+1)^2}, \frac{x}{xyz+(z+1)^2}\right)$
2204	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1797: $\left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$
2241	$x+yz+y+z+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3y^2}+\frac{1}{x^3y^2z}$	1508: $\left(x+y, \frac{x}{y(x+y)}, z\right)$ 2798: $\left(x, z, \frac{x^2z+(xz+1)^2}{x^3yz^2}\right)$
2317	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1084: $\left(\frac{xy+z(xy+1)^2}{x^2yz}, z, \frac{x^3y^2z}{xy+z(xy+1)^2}\right)$
2322	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1498: $\left(x, \frac{(z+1)(xz+z+1)}{xyz}, z\right)$ 1858: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, z\right)$ 2179: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{1}{xz}\right)$ 3177: $\left(\frac{x^2y}{xy+z+1}, \frac{xy+z+1}{x}, z\right)$
2782	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1267: $\left(\frac{x^2yz+(xyz+1)^2}{x^2yz^2}, x, \frac{x^2y^2z^3}{x^2yz+(xyz+1)^2}\right)$
2798	$x+y+z+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{2}{x^3yz^2}+\frac{4}{x^4yz^2}+\frac{1}{x^5yz^3}$	2241: $\left(x, \frac{x^2y+(xy+1)^2}{x^3y^2z}, y\right)$ 3788: $\left(\frac{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}{x^5yz^3}, \frac{x^6y^2z^3}{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}, \frac{x^6yz^4}{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}\right)$
2848	$x+y+z+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{5}{x^2y}+\frac{3}{x^2yz}+\frac{z}{x^3y^2}+\frac{3}{x^3y^2}+\frac{3}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	1355: $\left(\frac{1+z(xy+1)^2}{xy^2z}, \frac{x^2y^3z}{1+z(xy+1)^2}, z\right)$
2878	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{4}{x^2z}+\frac{3y}{x^3z}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{3y}{x^4z^2}+\frac{y}{x^5z^3}$	2158: $\left(x, \frac{x^4z^2}{y(x^2z+xz+1)^2}, z\right)$
3177	$x+y+z+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{5z}{x^2y}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{z^2}{x^3y^2}+\frac{3z}{x^3y^2}+\frac{3}{x^3y^2}+\frac{1}{x^3y^2z}$	2322: $\left(\frac{xy+z+1}{y}, \frac{xy^2}{xy+z+1}, z\right)$

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Table 83 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 83a
3189	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{5}{x^2z}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1768: $\left(\frac{x^2z+xyz+y}{xz}, \frac{x^2z^2}{x^2z+xyz+y}, \frac{x^2z}{y(x^2z+xyz+y)}\right)$
3788	$x+y+z+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{10}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2}+\frac{8}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{6}{x^5y^2z^2}+\frac{4}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	2798: $\left(\frac{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}{x^5yz^3}, \frac{x^6y^2z^3}{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}, \frac{x^6yz^4}{(x^2yz+xz+1)(x^3yz^2+(xz+1)^3)}\right)$

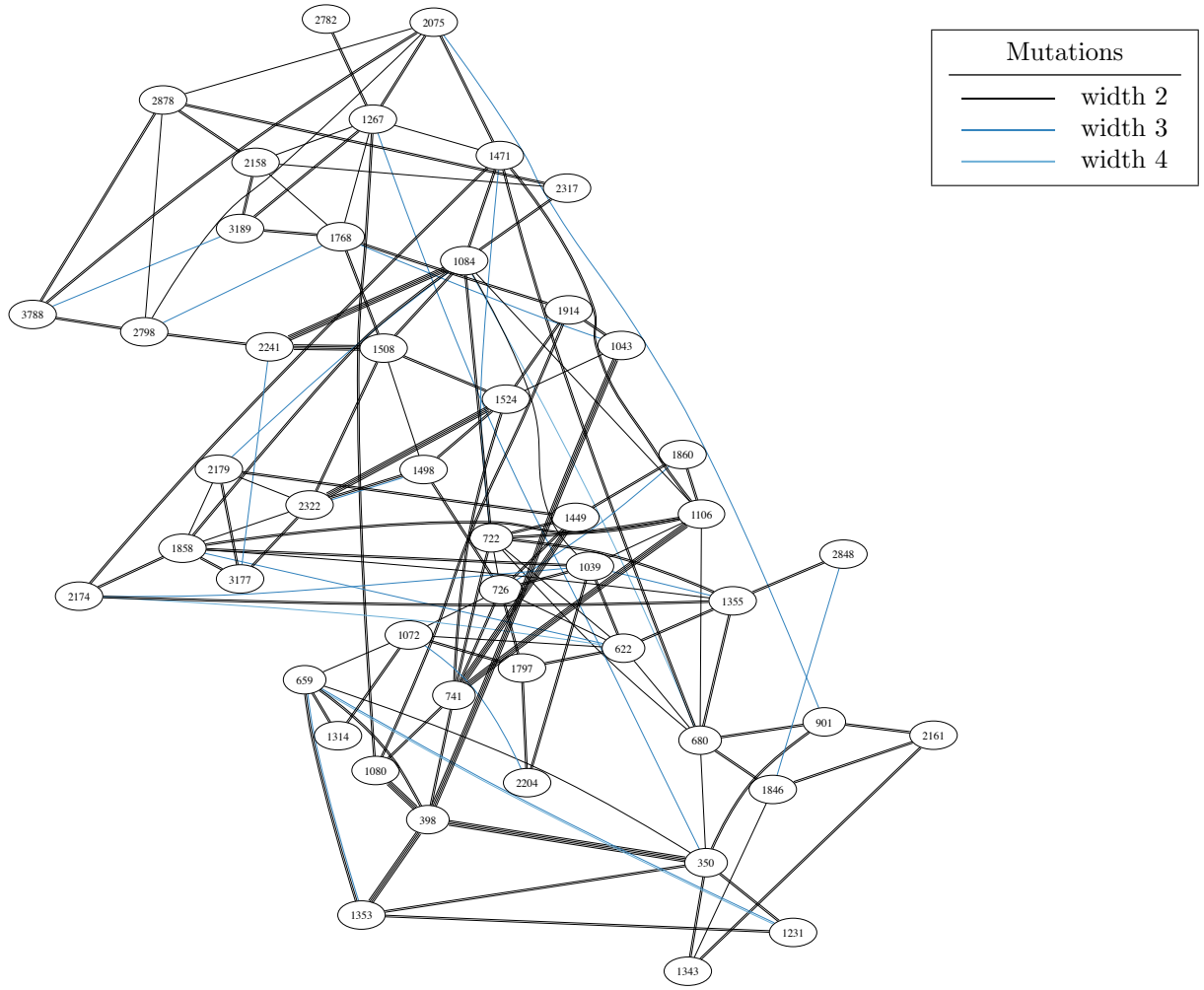

Figure 83b. All mutations between Minkowski polynomials in bucket 83

Bucket 84

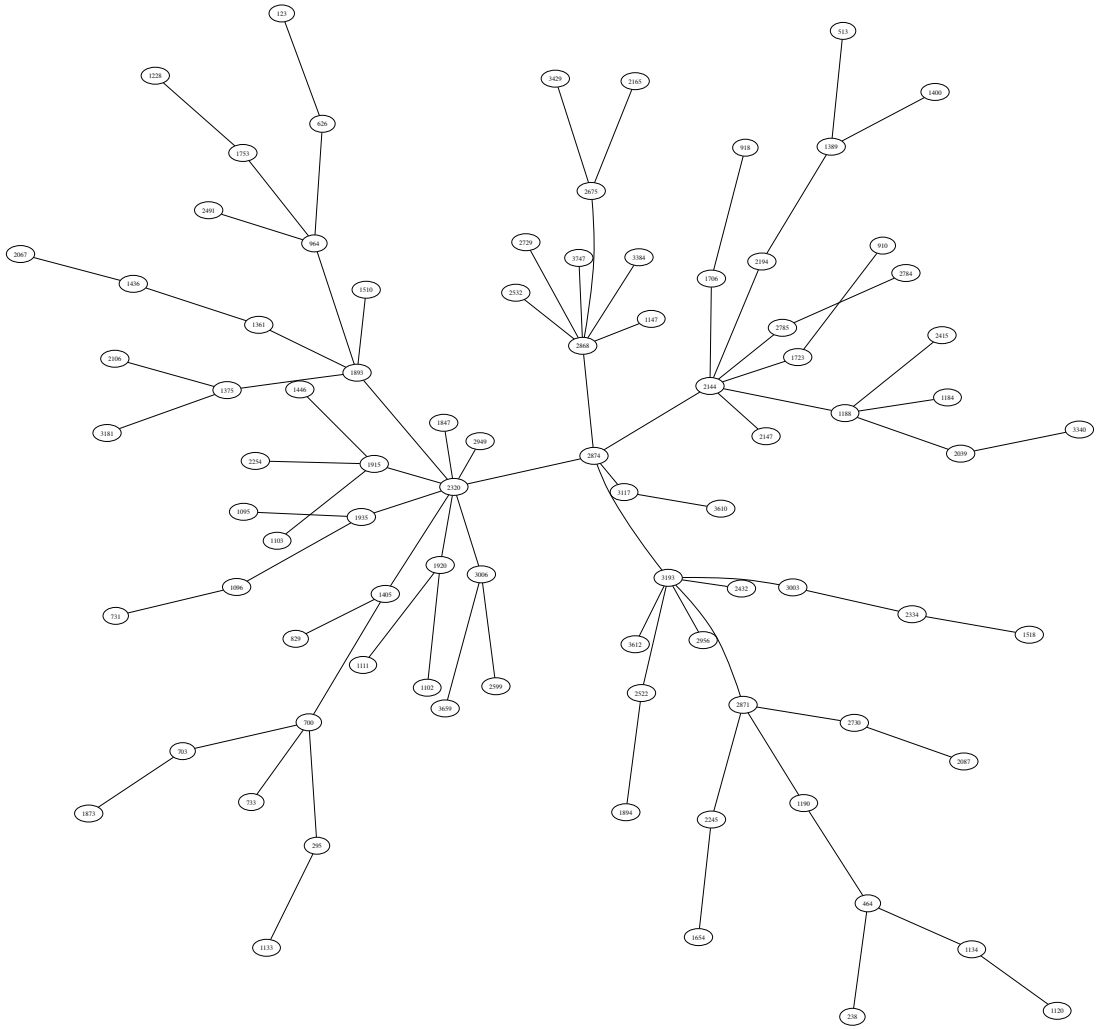

Figure 84a. Selected width-2 mutations between Minkowski polynomials in bucket 84

Table 84. Laurent polynomials and selected mutations for bucket 84.

Node	Laurent polynomial	Mutations from Figure 84a
123	$x+\frac{x}{yz}+y^2z+2yz+y+z+\frac{2}{yz}+\frac{1}{xyz}$	626: $\left(z,\frac{y}{x},\frac{x^2}{x+y}\right)$
238	$x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{z}{xy}$	464: $\left(\frac{xy^2z+(x+y)^2}{xy^2},\frac{x^2y^2z}{xy^2z+(x+y)^2},\frac{xy^3z}{xy^2z+(x+y)^2}\right)$
295	$x+\frac{2x}{z}+\frac{x}{z^2}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{x}+\frac{z}{xy}$	700: $\left(\frac{xy}{x+1},z,x\right)$ 1133: $\left(\frac{x^2yz^2}{xyz^2+z+1},\frac{x}{xyz^2+z+1},\frac{xz}{xyz^2+z+1}\right)$
464	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xyz}+\frac{1}{x^2z}$	238: $\left(\frac{xyz^2+(y+z)^2}{xz^2},\frac{xyz^2+(y+z)^2}{xyz},\frac{x^2yz^2}{xyz^2+(y+z)^2}\right)$ 1134: $\left(\frac{xy}{y+z},\frac{xz}{y+z},y+z\right)$ 1190: $\left(\frac{yz+1}{z},x,\frac{yz^2}{yz+1}\right)$
513	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	1389: $\left(x,y+z,\frac{y}{z(y+z)}\right)$
626	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	123: $\left(\frac{x+1}{xyz},\frac{x+1}{yz},y\right)$ 964: $\left(x,y,\frac{xyz}{xy+x+y}\right)$
700	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	295: $\left(z,\frac{x(z+1)}{z},y\right)$ 703: $\left(\frac{xz+yz+1}{xyz},\frac{x}{y},\frac{xz+yz+1}{x}\right)$ 733: $\left(\frac{x+1}{y},x,\frac{x+1}{xz}\right)$ 1405: $\left(y,\frac{xy}{y+z+1},\frac{y+z+1}{xz}\right)$
703	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	700: $\left(\frac{x+yz+z}{xz},\frac{x+yz+z}{xyz},\frac{yz^2}{x+yz+z}\right)$ 1873: $\left(y,\frac{xy^2z}{y^2z+yz+1},\frac{1}{yz}\right)$
731	$xz+x+\frac{xz}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}$	1096: $\left(\frac{yz+1}{x},y,\frac{1}{z}\right)$
733	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	700: $\left(y,\frac{y+1}{x},\frac{y+1}{yz}\right)$
829	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1405: $\left(x,y,\frac{z(y+1)}{y}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
910	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	1723: $\left(y, \frac{xyz}{yz+(z+1)^2}, z\right)$
918	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1706: $\left(\frac{x^2y^2z}{xy^2z+(y+1)^2}, \frac{xy^2z+(y+1)^2}{xy^2}, y\right)$
964	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	626: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 1753: $\left(\frac{(yz+y+z)^2}{xy^2z}, \frac{(yz+y+z)^2}{xyz}, \frac{xy^2}{(yz+y+z)^2}\right)$ 1893: $\left(x, \frac{y+z}{yz}, \frac{y^2}{y+z}\right)$ 2491: $\left(\frac{yz+(z+1)^2}{xz}, y, \frac{x}{yz+(z+1)^2}\right)$
1095	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	1935: $\left(x, \frac{xy}{x+1}, z\right)$
1096	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	731: $\left(\frac{y+z}{xz}, y, \frac{1}{z}\right)$ 1935: $\left(x, \frac{xyz}{(z+1)(x+1)}, \frac{1}{z}\right)$
1102	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	1920: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{(xz+y)(xyz+xz+y)}{x^3yz^2}\right)$
1103	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1915: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{(xz+1)(xz+y+1)}{x^2yz}, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
1111	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1920: $\left(\frac{xyz+xz+y}{xy}, \frac{x^2yz}{xyz+xz+y}, \frac{x^2z}{xyz+xz+y}\right)$
1120	$xz^2+2xz+x+y+3z+\frac{z^2}{y}+\frac{4}{x}+\frac{4z}{xy}+\frac{2}{x^2z}+\frac{6}{x^2y}+\frac{4}{x^3yz}+\frac{1}{x^4yz^2}$	1134: $\left(x, \frac{(y+z)^3}{x^2y^2z^2}, \frac{y}{xz}\right)$
1133	$xy^2z^2+2xyz+x+yz^2+3yz+y+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	295: $\left(x+y+z, \frac{x}{y(x+y+z)}, \frac{y}{z}\right)$
1134	$x+y+\frac{2y}{z}+z+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	464: $\left(x+y, \frac{xz}{x+y}, \frac{yz}{x+y}\right)$ 1120: $\left(x, \frac{(xz+1)^3}{x^3yz}, \frac{(xz+1)^3}{x^4yz^2}\right)$
1147	$x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	2868: $\left(\frac{(xy+1)^2}{xy^2}, \frac{1}{z}, \frac{x^2y^3}{(xy+1)^2}\right)$
1184	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	1188: $\left(\frac{(xz+1)(xz+yz+1)}{x^2yz^2}, \frac{(xz+1)(xz+yz+1)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+yz+1)}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
1188	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1184: $\left(\frac{(yz+1)(xyz+x+y)}{xy^2z}, \frac{(yz+1)(xyz+x+y)}{x^2y^2z^2}, \frac{xy^3z^2}{(yz+1)(xyz+x+y)}\right)$ 2039: $\left(x, \frac{x^2z^2}{y(xz+y+z)^2}, \frac{(xz+y+z)^2}{x^2z}\right)$ 2144: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 2415: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{z(xy+1)}{xy}\right)$
1190	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	464: $\left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$ 2871: $\left(x, \frac{z(xy+1)^2}{x^2y^2}, y\right)$
1228	$x+y+z+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1753: $\left(x, \frac{z(y+1)}{y}, y\right)$
1361	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1436: $\left(y, x, \frac{z(x+1)}{x}\right)$ 1893: $\left(x, \frac{(y+z)(x+1)}{xyz}, \frac{xy^2}{(y+z)(x+1)}\right)$
1375	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^3z^2}$	1893: $\left(x, \frac{(y+z)(xy+z)}{xy^2z}, \frac{xy^3}{(y+z)(xy+z)}\right)$ 2106: $\left(\frac{x^2y}{xy+z}, y, \frac{xy+z}{xy^2z}\right)$ 3181: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
1389	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	513: $\left(x, \frac{y^2z}{yz+1}, \frac{y}{yz+1}\right)$ 1400: $\left(x, \frac{x^2yz}{(x+1)(xz+1)}, \frac{xy}{(x+1)(xz+1)}\right)$ 2194: $\left(x, y, \frac{x^2yz}{x+y(x+1)^2}\right)$
1400	$x+\frac{xz}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1389: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{y}{xz}\right)$
1405	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	700: $\left(\frac{xyz+x+yz}{xz}, x, \frac{x}{yz}\right)$ 829: $\left(x, y, \frac{yz}{y+1}\right)$ 2320: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{x+y}{x^2z}\right)$
1436	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1361: $\left(x, y, \frac{yz}{y+1}\right)$ 2067: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, y\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
1446	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1915: $\left(x, y, \frac{y+1}{xyz}\right)$
1510	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	1893: $\left(x, \frac{x+1}{xz}, \frac{xy}{x+1}\right)$
1518	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2334: $\left(x, \frac{1}{z}, \frac{xyz}{xz+z+1}\right)$
1654	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2245: $\left(x, \frac{xy+xz+z}{xyz}, \frac{xy^2}{xy+xz+z}\right)$
1706	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	918: $\left(\frac{xyz^2+(z+1)^2}{yz^2}, z, \frac{xy^2z^2}{xyz^2+(z+1)^2}\right)$ 2144: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$
1723	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	910: $\left(\frac{y(xz+(z+1)^2)}{xz}, x, z\right)$ 2144: $\left(\frac{xz+1}{xyz}, \frac{x^2z}{xz+1}, \frac{x}{xz+1}\right)$
1753	$x+y+z+\frac{z}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	964: $\left(\frac{(xyz+x+y)^2}{x^2y^2z}, \frac{y}{x}, \frac{1}{xz}\right)$ 1228: $\left(x, y, \frac{yz}{y+1}\right)$
1847	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	2320: $\left(\frac{(x+y)(xz+x+y)}{x^2y}, \frac{x^3z}{(x+y)(xz+x+y)}, \frac{x^3}{(x+y)(xz+x+y)}\right)$
1873	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	703: $\left(\frac{y(x+z+1)}{x}, x, \frac{1}{xz}\right)$
1893	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	964: $\left(x, \frac{yz+1}{y}, \frac{yz+1}{y^2z}\right)$ 1361: $\left(x, \frac{(yz+1)(x+1)}{xy}, \frac{(yz+1)(x+1)}{xy^2z}\right)$ 1375: $\left(x, \frac{(yz+1)(xyz+1)}{xy^2z}, \frac{(yz+1)(xyz+1)}{xy^3z^2}\right)$ 1510: $\left(x, \frac{z(x+1)}{x}, \frac{x+1}{xy}\right)$ 2320: $\left(\frac{(x+y)(xz+y)}{x^2yz}, \frac{x^3z}{(x+y)(xz+y)}, \frac{x^2y}{(x+y)(xz+y)}\right)$
1894	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	2522: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+y+1)}, y\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
1915	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1103: $\left(\frac{(xz+1)(xyz+x+y)}{x^2yz}, \frac{x}{y}, \frac{x^3yz^2}{(xz+1)(xyz+x+y)}\right)$ 1446: $\left(x, y, \frac{y+1}{xyz}\right)$ 2254: $\left(x, y, \frac{(y+1)(x+y+1)}{x^2yz}\right)$ 2320: $\left(x, \frac{xy+xz+y}{x}, \frac{z}{y}\right)$
1920	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	1102: $\left(\frac{(x+yz)(xz+x+yz)}{x^2yz}, z, \frac{x^3z}{(x+yz)(xz+x+yz)}\right)$ 1111: $\left(\frac{xy+xz+1}{x}, \frac{y}{z}, \frac{x^2y}{xy+xz+1}\right)$ 2320: $\left(x, \frac{x^2z}{y(x^2z+xz+y)}, \frac{z}{y}\right)$
1935	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1095: $\left(x, \frac{y(x+1)}{x}, z\right)$ 1096: $\left(x, \frac{y(z+1)(x+1)}{x}, \frac{1}{z}\right)$ 2320: $\left(\frac{x^2z}{xz+y}, \frac{xz+y}{xyz}, \frac{xy}{xz+y}\right)$
2039	$x+y+z+\frac{1}{y}+\frac{2y^2}{xz}+\frac{4y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	1188: $\left(x, \frac{x^2yz^2}{(xyz+yz+1)^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$ 3340: $\left(\frac{(x^2y^2z+xyz+1)(x^2y^2z+(xyz+1)^2)}{x^4y^3z^2}, \frac{(x^2y^2z+xyz+1)(x^2y^2z+(xyz+1)^2)}{x^5y^4z^2}, \frac{(x^2y^2z+xyz+1)(x^2y^2z+(xyz+1)^2)}{x^4y^3z}\right)$
2067	$x+y+z+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	1436: $\left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$
2087	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	2730: $\left(x, y, \frac{xy+(x+1)^2}{x^2y^2z}\right)$
2106	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	1375: $\left(\frac{xy^2z+1}{y^2z}, y, \frac{xy^2z+1}{xy^3z^2}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
2144	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	1188: $\left(x, \frac{xyz}{xz+1}, z\right)$ 1706: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xyz}{xy+1}\right)$ 1723: $\left(y+z, \frac{y+z}{xy}, \frac{y}{z(y+z)}\right)$ 2147: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{(yz+1)(xz+1)}{x^2yz^2}, \frac{xy^2z^2}{(yz+1)(xz+1)}\right)$ 2194: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2yz}, \frac{x^2}{xyz+x+y}\right)$ 2785: $\left(x, \frac{x^3yz}{(xz+1)(xz+(x+1)^2)}, z\right)$ 2874: $\left(x, y, \frac{(xy+x+y)^2}{x^3yz}\right)$
2147	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2144: $\left(\frac{(x+y)(xz+1)}{x^2yz}, \frac{(x+y)(xz+1)}{x^2}, \frac{x^3z}{(x+y)(xz+1)}\right)$
2165	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2675: $\left(\frac{xy+xz+z}{xyz}, x, \frac{xy^2}{xy+xz+z}\right)$
2194	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	1389: $\left(x, y, \frac{z(x+y(x+1)^2)}{x^2y}\right)$ 2144: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2yz}, \frac{x^2}{xyz+x+y}\right)$
2245	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{z}{x^3y^2}$	1654: $\left(x, \frac{xyz+x+1}{xy}, \frac{xyz+x+1}{xy^2z}\right)$ 2871: $\left(x, y, \frac{z(x+1)}{x}\right)$
2254	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1915: $\left(x, y, \frac{(y+1)(x+y+1)}{x^2yz}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
2320	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	1405: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{1}{xz}\right)$ 1847: $\left(\frac{(xz+1)(xy+xz+1)}{x^2z}, \frac{(xz+1)(xy+xz+1)}{x^3z^2}, \frac{y}{z}\right)$ 1893: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{(y+z)(xy+1)}{x^2y^2}, \frac{1}{xz}\right)$ 1915: $\left(x, \frac{xy}{xz+x+1}, \frac{xyz}{xz+x+1}\right)$ 1920: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, \frac{x^2z^2}{y(x^2z+xz+1)}\right)$ 1935: $\left(x+z, \frac{x+z}{xy}, \frac{1}{yz}\right)$ 2874: $\left(x, y, \frac{(x+y)(xy+x+y)}{x^3z}\right)$ 2949: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{1}{xyz}\right)$ 3006: $\left(x, \frac{x^3yz}{(xz+x+1)(x^2z+xz+1)}, \frac{x^3yz^2}{(xz+x+1)(x^2z+xz+1)}\right)$
2334	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1518: $\left(x, \frac{z(x+y+1)}{x}, \frac{1}{y}\right)$ 3003: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}, \frac{1}{y}\right)$
2415	$x+y+z+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1188: $\left(\frac{(yz+1)(xz+1)(xz+yz+1)}{x^2yz^2}, \frac{x^3yz^3}{(yz+1)(xz+1)(xz+yz+1)}, \frac{x^3z^2}{(yz+1)(xz+1)(xz+yz+1)}\right)$
2432	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}+\frac{2y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	3193: $\left(x, \frac{y(xz+1)}{xz}, z\right)$
2491	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	964: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{1}{xz}\right)$
2522	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1894: $\left(\frac{(xy+1)(xy+z+1)}{x^2y}, z, \frac{x^3y^2}{(xy+1)(xy+z+1)}\right)$ 3193: $\left(\frac{x^3z}{x^2z+y}, \frac{x^2yz}{x^2z+y}, \frac{x^2z+y}{x^2}\right)$
2532	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3y}{x^2z}+\frac{2y}{x^2z^2}+\frac{3}{x^2z}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	2868: $\left(\frac{(xy+1)^2(xyz+1)}{x^2y^3z}, \frac{1}{z}, \frac{x^3y^4z}{(xy+1)^2(xyz+1)}\right)$
2599	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3006: $\left(\frac{x^3yz}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2z}, \frac{1}{xz}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
2675	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{1}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	2165: $\left(x, \frac{xyz+x+1}{xy}, \frac{xyz+x+1}{xy^2z}\right)$ 2868: $\left(\frac{xy^2z}{xyz+1}, \frac{xyz+1}{yz}, \frac{1}{z}\right)$ 3429: $\left(y, \frac{(xyz+y+1)(xy^2z+y+1)}{x^2y^3z}, \frac{(xyz+y+1)(xy^2z+y+1)}{x^3y^3z^2}\right)$
2729	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{4}{xy}+\frac{3}{xyz}+\frac{4}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^2y^3z^2}+\frac{2}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^4y^4z^3}$	2868: $\left(y, \frac{xy^2z+(xyz+1)^2}{x^2y^2z}, \frac{x^3y^2z^2}{xy^2z+(xyz+1)^2}\right)$
2730	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{4}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^3yz}+\frac{4}{x^3y^2z}+\frac{1}{x^4y^2z}$	2087: $\left(x, y, \frac{xy+(x+1)^2}{x^2y^2z}\right)$ 2871: $\left(x, \frac{x^2y+z(x+1)^2}{x^2yz}, \frac{x^2y^2}{x^2y+z(x+1)^2}\right)$
2784	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xy}+\frac{3}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{1}{x^2y}+\frac{3}{x^2y^2z}+\frac{3}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	2785: $\left(\frac{x^2yz+xz+1}{x^2z}, \frac{x^3yz}{x^2yz+xz+1}, \frac{x^2yz+xz+1}{x^2y}\right)$
2785	$x+y+z+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2144: $\left(x, \frac{y(xz+1)(xz+(x+1)^2)}{x^3z}, z\right)$ 2784: $\left(\frac{xy^2z+yz+1}{xyz}, \frac{x^2y^2z}{xy^2z+yz+1}, \frac{xy^2z^2}{xy^2z+yz+1}\right)$
2868	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{2}{x^2y^3z^2}+\frac{1}{x^3y^4z^2}$	1147: $\left(\frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2z}, \frac{1}{y}\right)$ 2532: $\left(\frac{x^4z^3}{(xz+1)^2(xz+y)}, \frac{(xz+1)^2(xz+y)}{x^3z^2}, \frac{1}{y}\right)$ 2675: $\left(\frac{xy^2}{xy+z}, \frac{xy+z}{y}, \frac{1}{z}\right)$ 2729: $\left(\frac{xy^2z+(xyz+1)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{xy^2z+(xyz+1)^2}\right)$ 2874: $\left(\frac{x^2z+x+y}{x^2yz}, \frac{x^3z}{x^2z+x+y}, \frac{x^2z+x+y}{x^2}\right)$ 3384: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{1}{y}\right)$ 3747: $\left(\frac{(xy^2z+1)(xy^2z+(xyz+1)^2)}{x^3y^4z^2}, y, \frac{x^4y^4z^3}{(xy^2z+1)(xy^2z+(xyz+1)^2)}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
2871	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{4z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{2z}{x^3y}+\frac{2z}{x^3y^2}+\frac{z}{x^4y^2}$	1190: $\left(x, z, \frac{x^2yz^2}{(xz+1)^2}\right)$ 2245: $\left(x, y, \frac{xz}{x+1}\right)$ 2730: $\left(x, \frac{x^2yz+(x+1)^2}{x^2y}, \frac{x^2yz+(x+1)^2}{x^2y^2z}\right)$ 3193: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{xyz}{xz+1}\right)$
2874	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{2y^2}{x^3z}+\frac{3y}{x^3z}+\frac{y^2}{x^4z}$	2144: $\left(x, y, \frac{(xy+x+y)^2}{x^3yz}\right)$ 2320: $\left(x, y, \frac{(x+y)(xy+x+y)}{x^3z}\right)$ 2868: $\left(\frac{xy^2z+xy+1}{xyz}, \frac{xy^2z+xy+1}{x^2y^2z}, \frac{xy^2z^2}{xy^2z+xy+1}\right)$ 3117: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, \frac{z(xy+1)}{xy}\right)$ 3193: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^2z+y(xz+1)^2}{x^3yz^2}, \frac{x^3z}{x^2z+y(xz+1)^2}\right)$
2949	$x+yz+y+z+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{3z}{x^2y}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	2320: $\left(x+y, \frac{x}{y(x+y)}, \frac{y}{xz}\right)$
2956	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{3y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{y}{x^4z^3}$	3193: $\left(x, \frac{x^3z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$
3003	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	2334: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, \frac{1}{z}, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}\right)$ 3193: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
3006	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^3yz^2}+\frac{1}{x^4yz^2}$	2320: $\left(x, \frac{(xy+xz+y)(x^2z+xz+y)}{x^3z}, \frac{z}{y}\right)$ 2599: $\left(\frac{xy+z+1}{y}, \frac{xy^2}{xy+z+1}, \frac{y}{z(xy+z+1)}\right)$ 3659: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}, \frac{x^2y}{(xy+z+1)(xyz+(z+1)^2)}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
3117	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{4}{x^2z}+\frac{5}{x^2y}+\frac{4}{x^2yz}+\frac{6}{x^3yz}+\frac{2}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^3z}$	2874: $\left(x+y, \frac{x}{y(x+y)}, \frac{xz}{x+y}\right)$ 3610: $\left(x, y, \frac{(x^2y+(xy+1)^2)^2}{x^5y^3z}\right)$
3181	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1375: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
3193	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{4}{x^2z}+\frac{3y}{x^3z}+\frac{2y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{3y}{x^4z^2}+\frac{y}{x^5z^3}$	2432: $\left(x, \frac{xyz}{xz+1}, z\right)$ 2522: $\left(\frac{x^2z+y}{xz}, \frac{y(x^2z+y)}{x^2z}, \frac{x^2z^2}{x^2z+y}\right)$ 2871: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy^2}{xy+1}\right)$ 2874: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^2yz+(x+y)^2}{x^3yz}, \frac{x^3}{x^2yz+(x+y)^2}\right)$ 2956: $\left(x, \frac{x^3z^2}{y(xz+1)(x^2z+xz+1)}, z\right)$ 3003: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$ 3612: $\left(x, \frac{y(xz+1)}{xz}, z\right)$
3340	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{5z}{x}+\frac{4}{x}+\frac{4}{xy}+\frac{4z}{x^2y}+\frac{8}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{6}{x^3y^2}+\frac{5}{x^3y^2z}+\frac{4}{x^4y^3z}+\frac{1}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	2039: $\left(x+y+z, \frac{x}{y(x+y+z)}, \frac{z}{x}\right)$
3384	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{2y}{x^2z^2}+\frac{3}{x^2z}+\frac{3y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{2y}{x^4z^3}+\frac{y^2}{x^5z^4}$	2868: $\left(\frac{xy+1}{x}, \frac{1}{z}, \frac{x^2y}{xy+1}\right)$
3429	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{5}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{3}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2675: $\left(\frac{(xy+xz+z)(x^2y+xz+z)}{x^3y^2z}, x, \frac{x^3y^3}{(xy+xz+z)(x^2y+xz+z)}\right)$
3610	$x+y+z+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{6}{x^2yz}+\frac{1}{x^2y^2z}+\frac{10}{x^3yz}+\frac{2}{x^3y^2}+\frac{6}{x^3y^2z}+\frac{10}{x^4y^2z}+\frac{2}{x^4y^3z}+\frac{5}{x^5y^3z}+\frac{1}{x^6y^4z}$	3117: $\left(x, y, \frac{(x^2y+(xy+1)^2)^2}{x^5y^3z}\right)$
3612	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{4y}{x^3z}+\frac{6y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{6y}{x^4z^2}+\frac{2y}{x^4z^3}+\frac{4y}{x^5z^3}+\frac{y}{x^6z^4}$	3193: $\left(x, \frac{xyz}{xz+1}, z\right)$
3659	$x+y+z+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3z^2}{x^2y}+\frac{8z}{x^2y}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{z^3}{x^3y^2}+\frac{4z^2}{x^3y^2}+\frac{6z}{x^3y^2}+\frac{4}{x^3y^2}+\frac{1}{x^3y^2z}$	3006: $\left(\frac{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{x^5y^2z^2}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}, \frac{1}{xz}\right)$

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Table 84 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 84a
3747	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{4}{xy^2z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{8}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{2}{x^2y^3z^2}+\frac{3}{x^3y^2z^2}+\frac{8}{x^3y^3z^2}+\frac{6}{x^3y^4z^2}+\frac{3}{x^4y^4z^3}+\frac{4}{x^4y^5z^3}+\frac{1}{x^5y^6z^4}$	2868: $\left(\frac{(xy^2z+1)(xy^2z+(xyz+1)^2)}{x^3y^4z^2}, y, \frac{x^4y^4z^3}{(xy^2z+1)(xy^2z+(xyz+1)^2)}\right)$

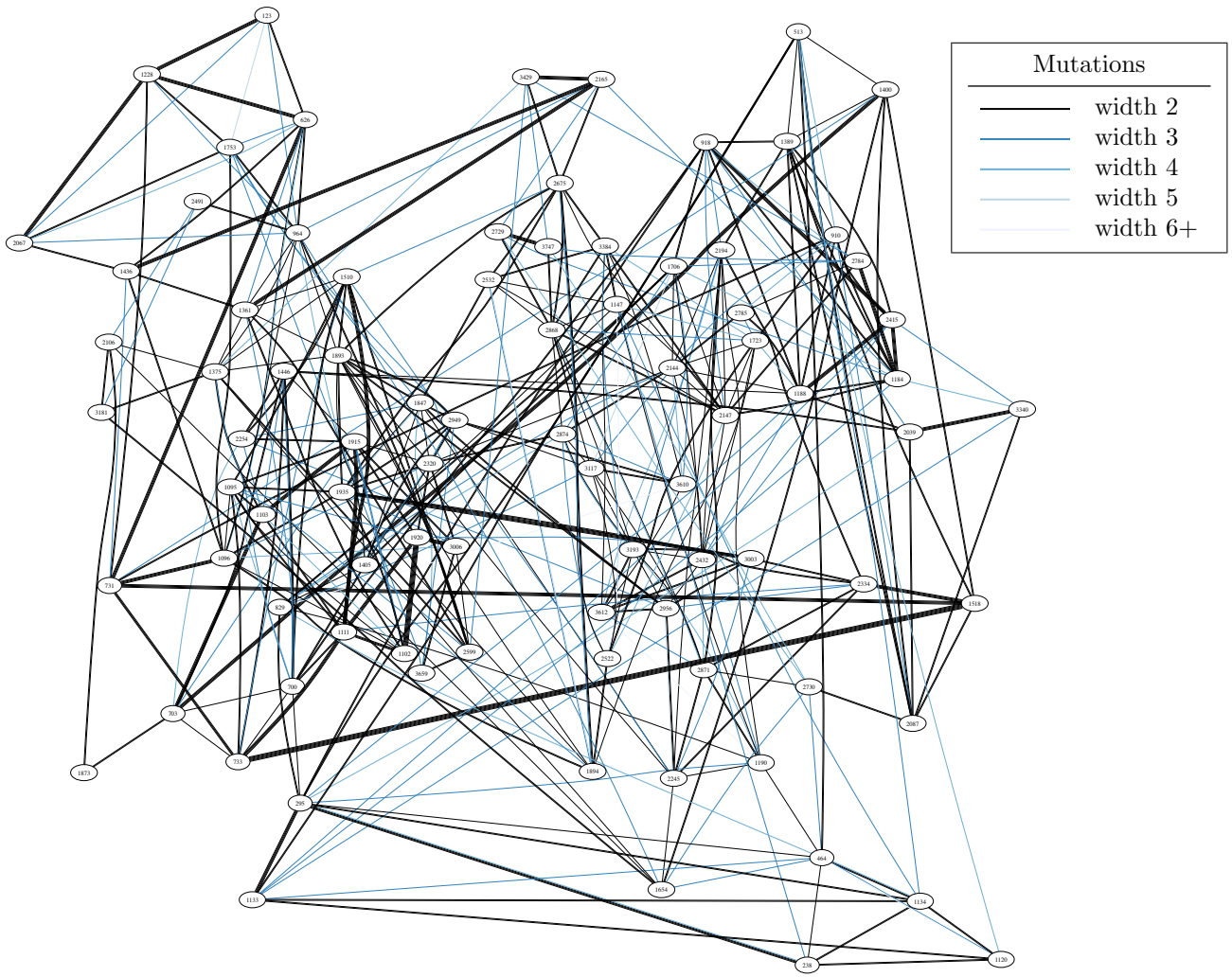

Figure 84b. All mutations between Minkowski polynomials in bucket 84

Bucket 85

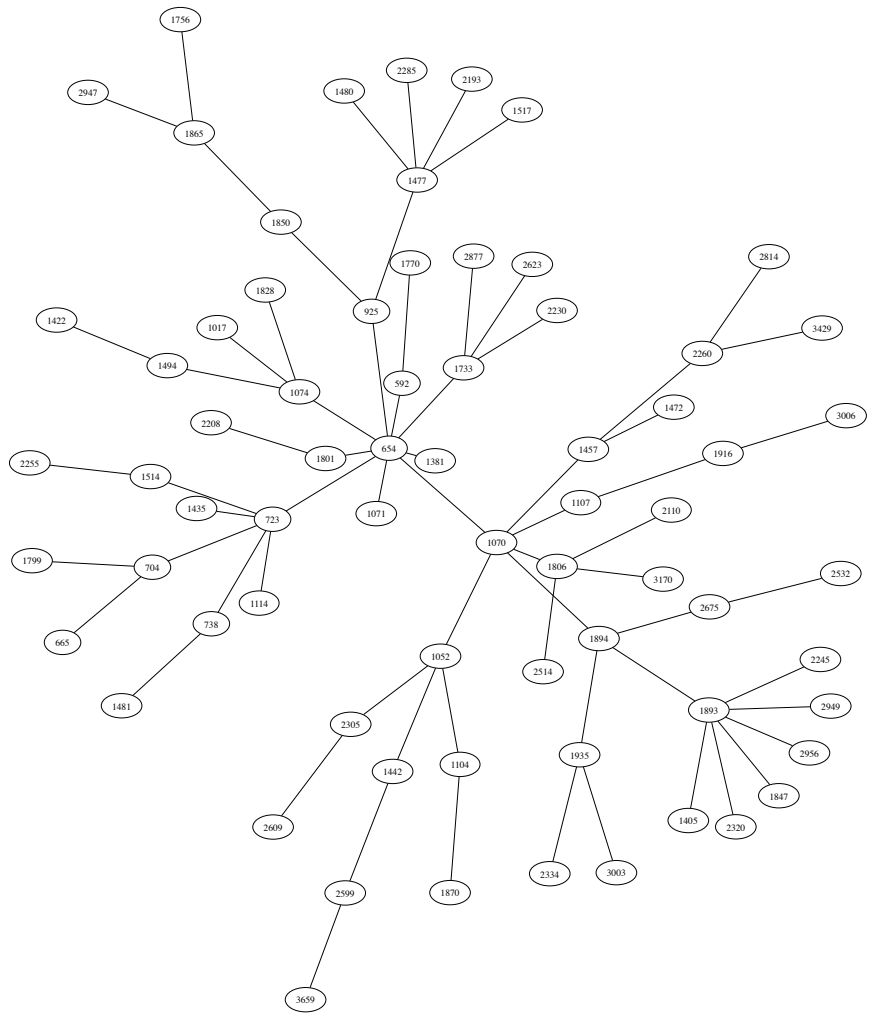

Figure 85a. Selected width-2 mutations between Minkowski polynomials in bucket 85

Table 85. Laurent polynomials and selected mutations for bucket 85.

Node	Laurent polynomial	Mutations from Figure 85a
592	$xy + x + y + z + \frac{1}{y} + \frac{y}{xz} + \frac{3}{x} + \frac{2}{xz} + \frac{3}{x^2z} + \frac{1}{x^3z^2}$	654: $\left(\frac{xy+1}{y}, \frac{xyz}{xy+1}, \frac{xy^2}{xy+1}\right)$ 1770: $\left(\frac{(xz+1)^3}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^3}\right)$
654	$xz + x + y + z + \frac{1}{z} + \frac{1}{y} + \frac{2}{x} + \frac{2}{xy} + \frac{1}{xyz} + \frac{1}{x^2y}$	592: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{y(xz+1)}{xz}\right)$ 723: $\left(x, \frac{x+1}{xz}, \frac{y}{x+1}\right)$ 925: $\left(\frac{xz}{z+1}, \frac{z+1}{yz}, \frac{z+1}{x}\right)$ 1070: $\left(\frac{x+z}{xz}, \frac{x^2}{x+z}, y\right)$ 1071: $\left(x, z, \frac{xz+1}{xyz}\right)$ 1074: $\left(y, \frac{xyz+y+1}{xy}, \frac{x^2z}{xyz+y+1}\right)$ 1381: $\left(\frac{(xz+y)^2}{x^2yz}, \frac{x^3z^2}{(xz+y)^2}, y\right)$ 1733: $\left(\frac{x^2yz}{(y+1)(xz+1)}, \frac{(y+1)(xz+1)}{xy}, \frac{(y+1)(xz+1)}{x^2z}\right)$ 1801: $\left(y, \frac{(y+1)(xyz+y+1)}{xy^2}, \frac{x^2yz}{(y+1)(xyz+y+1)}\right)$
665	$x + \frac{x}{y} + y + z + \frac{2}{y} + \frac{y}{xz} + \frac{2}{x} + \frac{1}{xz} + \frac{1}{xy} + \frac{1}{x^2z}$	704: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$
704	$x + \frac{x}{y} + y + z + \frac{1}{y} + \frac{y}{x} + \frac{y}{xz} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz}$	665: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 723: $\left(\frac{xz+yz+y}{xyz}, \frac{1}{z}, \frac{x}{y}\right)$ 1799: $\left(y, \frac{xy^2z}{(y+1)(yz+1)}, \frac{xy}{(y+1)(yz+1)}\right)$
723	$x + \frac{x}{y} + y + z + \frac{1}{z} + \frac{z}{y} + \frac{1}{y} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz}$	654: $\left(x, z(x+1), \frac{x+1}{xy}\right)$ 704: $\left(\frac{y+z+1}{x}, \frac{y+z+1}{xz}, \frac{1}{y}\right)$ 738: $\left(\frac{y(z+1)}{z}, x(z+1), z\right)$ 1114: $\left(y+z, x, \frac{y}{z}\right)$ 1435: $\left(\frac{xz}{z+1}, \frac{x}{z+1}, \frac{1}{y}\right)$ 1514: $\left(\frac{(z+1)^2}{xz}, y, z\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
738	$xz+x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}$	723: $\left(\frac{y}{z+1}, \frac{xz}{z+1}, z\right)$ 1481: $\left(\frac{1}{z}, \frac{1}{y}, \frac{y+z+1}{xy}\right)$
925	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	654: $\left(\frac{xz+1}{z}, \frac{xz+1}{xyz}, xz\right)$ 1477: $\left(x, \frac{1}{y}, \frac{z(xy+1)}{xy}\right)$ 1850: $\left(x, y, \frac{(x+y)^2}{x^2yz}\right)$
1017	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1074: $\left(x, \frac{x+1}{y}, \frac{xz}{x+1}\right)$
1052	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1070: $\left(\frac{xy+xz+z}{x}, x, \frac{y}{z}\right)$ 1104: $\left(x, \frac{x+1}{y}, \frac{xz}{x+1}\right)$ 1442: $\left(y, x, \frac{x+y+1}{xyz}\right)$ 2305: $\left(y, \frac{xy}{y+z}, \frac{y+z}{xyz}\right)$
1070	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{z}{x^2}$	654: $\left(\frac{xy+1}{x}, z, \frac{xy+1}{x^2y}\right)$ 1052: $\left(y, \frac{xyz}{yz+y+1}, \frac{xy}{yz+y+1}\right)$ 1107: $\left(x, \frac{x}{y(x+1)}, \frac{x}{z(x+1)}\right)$ 1457: $\left(x, \frac{xyz}{xz+x+z}, z\right)$ 1806: $\left(y, \frac{xy^2z}{(y+1)(yz+y+1)}, \frac{xy^2}{(y+1)(yz+y+1)}\right)$ 1894: $\left(x, z, \frac{x^2yz}{x+z(x+1)^2}\right)$
1071	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	654: $\left(x, \frac{xy+1}{xyz}, y\right)$
1074	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	654: $\left(\frac{x^2yz+x+1}{xy}, x, \frac{x^2y^2z}{x^2yz+x+1}\right)$ 1017: $\left(x, \frac{x+1}{y}, \frac{z(x+1)}{x}\right)$ 1494: $\left(x, \frac{x+1}{y}, z\right)$ 1828: $\left(x, \frac{(x+1)^2}{xy}, \frac{1}{xz}\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
1104	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1052: $\left(x, \frac{x+1}{y}, \frac{z(x+1)}{x}\right)$ 1870: $\left(\frac{xyz+(xz+1)^2}{x^2z}, \frac{xyz+(xz+1)^2}{x^2yz}, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
1107	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1070: $\left(x, \frac{x}{y(x+1)}, \frac{x}{z(x+1)}\right)$ 1916: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, \frac{1}{y}\right)$
1114	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}$	723: $\left(y, \frac{xz}{z+1}, z\right)$
1381	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{y^2}{x^3z^2}$	654: $\left(\frac{(xy+1)^2}{x^2y}, z, \frac{x^3y^2z}{(xy+1)^2}\right)$
1405	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1893: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$
1422	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	1494: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
1435	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	723: $\left(x+y, \frac{1}{z}, \frac{x}{y}\right)$
1442	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1052: $\left(y, x, \frac{x+y+1}{xyz}\right)$ 2599: $\left(y, \frac{xy}{y+z+1}, \frac{y+z+1}{xyz}\right)$
1457	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1070: $\left(x, \frac{y(xz+x+z)}{xz}, z\right)$ 1472: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$ 2260: $\left(x, z, \frac{x^2yz}{(x+1)(xz+z+1)}\right)$
1472	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1457: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$
1477	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	925: $\left(x, \frac{1}{y}, \frac{xz}{x+y}\right)$ 1480: $\left(x, \frac{x+z+1}{xy}, z\right)$ 1517: $\left(x, \frac{y(x+1)}{x}, \frac{y}{z}\right)$ 2193: $\left(x, \frac{x+yz(x+1)^2}{x^2y^2z}, \frac{x+yz(x+1)^2}{x^2y}\right)$ 2285: $\left(x, \frac{(x+1)(x+z+1)}{x^2y}, z\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
1480	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1477: $\left(x, \frac{x+z+1}{xy}, z\right)$
1481	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	738: $\left(\frac{xy+x+y}{xz}, \frac{1}{y}, \frac{1}{x}\right)$
1494	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1074: $\left(x, \frac{x+1}{y}, z\right)$ 1422: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$
1514	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	723: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 2255: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, \frac{1}{y}\right)$
1517	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1477: $\left(x, \frac{xy}{x+1}, z\right)$
1733	$x+y+z+\frac{z}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	654: $\left(\frac{(xz+1)(xy+1)}{xyz}, xz, \frac{x^2y^2z}{(xz+1)(xy+1)}\right)$ 2230: $\left(x, y+z, \frac{y}{xz}\right)$ 2623: $\left(x, \frac{(xyz+1)^2}{x^2yz^2}, yz\right)$ 2877: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
1756	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1865: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, \frac{1}{y}\right)$
1770	$x+yz+y+z+\frac{1}{y}+\frac{3y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	592: $\left(\frac{(xz+1)^3}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^3}\right)$
1799	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	704: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{y}{xz}\right)$
1801	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	654: $\left(\frac{(x+1)(x^2yz+x+1)}{x^2y}, x, \frac{x^3y^2z}{(x+1)(x^2yz+x+1)}\right)$ 2208: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$
1806	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1070: $\left(\frac{(x+1)(xy+xz+z)}{x^2}, x, \frac{y}{z}\right)$ 2110: $\left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, z\right)$ 2514: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$ 3170: $\left(\frac{x^3yz^2}{(xz+1)(xyz+y+1)}, \frac{(xz+1)(xyz+y+1)}{x^2yz}, y\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
1828	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	$1074\colon \left(x, \frac{(x+1)^2}{xy}, \frac{1}{xz}\right)$
1847	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	$1893\colon \left(\frac{(xy+1)^2}{x^2y}, \frac{x^2y^2}{z(xy+1)^2}, \frac{x^3y^2}{(xy+1)^2}\right)$
1850	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	$925\colon \left(x, y, \frac{(x+y)^2}{x^2yz}\right)$ $1865\colon \left(x, \frac{x}{y(x+1)}, z\right)$
1865	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$1756\colon \left(\frac{xyz+(z+1)^2}{xz}, \frac{1}{z}, \frac{x^2yz}{xyz+(z+1)^2}\right)$ $1850\colon \left(x, \frac{x}{y(x+1)}, z\right)$ $2947\colon \left(\frac{x^2yz}{xyz+1}, \frac{1}{y}, \frac{xyz+1}{xy}\right)$
1870	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3yz^2}$	$1104\colon \left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x}{y}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$
1893	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	$1405\colon \left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$ $1847\colon \left(\frac{(xz+1)^2}{x^2z}, \frac{x^3z^2}{(xz+1)^2}, \frac{x^2z^2}{y(xz+1)^2}\right)$ $1894\colon \left(x, y, \frac{xy}{z(xy+x+1)}\right)$ $2245\colon \left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, z\right)$ $2320\colon \left(\frac{(x+y)(xz+y)}{x^2yz}, \frac{x^3z}{(x+y)(xz+y)}, \frac{x^2y}{(x+y)(xz+y)}\right)$ $2949\colon \left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, \frac{xyz+z+1}{x}\right)$ $2956\colon \left(\frac{x^3z^2}{(xz+1)(xz+y)}, \frac{(xz+1)(xz+y)}{x^2z}, y\right)$
1894	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	$1070\colon \left(x, \frac{z(x+y(x+1)^2)}{x^2y}, y\right)$ $1893\colon \left(x, y, \frac{xy}{z(xy+x+1)}\right)$ $1935\colon \left(x, y, \frac{x}{z(x+1)}\right)$ $2675\colon \left(x, y, \frac{z(xy+1)}{xy}\right)$
1916	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	$1107\colon \left(x+y, \frac{1}{z}, \frac{y}{xz}\right)$ $3006\colon \left(x, \frac{x^2yz}{(x+1)(xz+1)}, \frac{xy}{(x+1)(xz+1)}\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
1935	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1894: $\left(x, y, \frac{x}{z(x+1)}\right)$ 2334: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, \frac{1}{z}\right)$ 3003: $\left(\frac{x^2yz}{xyz+y+1}, \frac{xyz+y+1}{xy}, y\right)$
2110	$x+y+z+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	1806: $\left(\frac{xyz+z+1}{yz}, \frac{xy^2z}{xyz+z+1}, z\right)$
2193	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2z}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{2}{x^2y}+\frac{z}{x^3}$	1477: $\left(x, \frac{xy+z(x+1)^2}{x^2yz}, \frac{x^2z^2}{xy+z(x+1)^2}\right)$
2208	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1801: $\left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$
2230	$x+y+z+\frac{2z}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	1733: $\left(x, \frac{xyz}{xz+1}, \frac{y}{xz+1}\right)$
2245	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^2y^2}+\frac{z}{x^3y^2}$	1893: $\left(\frac{xy+z}{y}, \frac{xy^2}{xy+z}, z\right)$
2255	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	1514: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{1}{z}, \frac{x^2yz}{xyz+(z+1)^2}\right)$
2260	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1457: $\left(x, \frac{z(x+1)(xy+y+1)}{x^2y}, y\right)$ 2814: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}, \frac{1}{y}\right)$ 3429: $\left(y, \frac{x^3y^2z^2}{(xyz+1)(xyz+y+1)}, \frac{(xyz+1)(xyz+y+1)}{x^2y^2z}\right)$
2285	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1477: $\left(x, \frac{(x+1)(x+z+1)}{x^2y}, z\right)$
2305	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1052: $\left(\frac{xyz+1}{xz}, x, \frac{1}{yz}\right)$ 2609: $\left(x, y, \frac{y^2}{z(y+1)(xy+y+1)}\right)$
2320	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	1893: $\left(\frac{(y+z)(xy+1)}{xy}, \frac{(y+z)(xy+1)}{x^2y^2}, \frac{1}{xz}\right)$
2334	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1935: $\left(\frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}, \frac{1}{z}\right)$
2514	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	1806: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
2532	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3y}{x^2z}+\frac{2y}{x^2z^2}+\frac{3}{x^2z}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	2675: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$
2599	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	1442: $\left(\frac{xyz+yz+1}{xz}, x, \frac{1}{yz}\right)$ 3659: $\left(\frac{x^3y^2}{(xy+z+1)^2}, \frac{(xy+z+1)^2}{x^2y}, z\right)$
2609	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	2305: $\left(x, y, \frac{y^2}{z(y+1)(xy+y+1)}\right)$
2623	$x+yz+y+z+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	1733: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2yz}\right)$
2675	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{1}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	1894: $\left(x, y, \frac{xyz}{xy+1}\right)$ 2532: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$
2814	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2260: $\left(\frac{(xyz+z+1)^2}{x^2yz^2}, \frac{1}{z}, \frac{x^3y^2z^2}{(xyz+z+1)^2}\right)$
2877	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{1}{x^3yz^2}+\frac{4}{x^4yz^2}+\frac{1}{x^5yz^3}$	1733: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
2947	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1865: $\left(\frac{xz+y}{z}, \frac{1}{y}, \frac{xz^2}{xz+y}\right)$
2949	$x+yz+y+z+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3z}{x^2y}+\frac{5}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^3y^2}+\frac{2}{x^3y^2}+\frac{1}{x^3y^2z}$	1893: $\left(\frac{xyz+y+z}{yz}, \frac{xy^2z}{xyz+y+z}, \frac{z}{y}\right)$
2956	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{3y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{y}{x^4z^3}$	1893: $\left(\frac{(xy+1)(xy+z)}{xy^2}, z, \frac{x^2y^3}{(xy+1)(xy+z)}\right)$
3003	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	1935: $\left(\frac{xyz+z+1}{yz}, \frac{1}{z}, \frac{xy^2z}{xyz+z+1}\right)$
3006	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{3}{x^3yz}+\frac{1}{x^3yz^2}+\frac{1}{x^4yz^2}$	1916: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{y}{xz}\right)$

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Table 85 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 85a
3170	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1806: $\left(\frac{(xy+1)(xyz+z+1)}{xy^2z}, z, \frac{x^2y^3z}{(xy+1)(xyz+z+1)}\right)$
3429	$x+y+z+\frac{2}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{5}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{3}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2260: $\left(\frac{(xyz+1)(xyz+x+1)}{x^2yz^2}, x, \frac{x^2y^2z^3}{(xyz+1)(xyz+x+1)}\right)$
3659	$x+y+z+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{3z^2}{x^2y}+\frac{8z}{x^2y}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{z^3}{x^3y^2}+\frac{4z^2}{x^3y^2}+\frac{6z}{x^3y^2}+\frac{4}{x^3y^2}+\frac{1}{x^3y^2z}$	2599: $\left(\frac{(xy+z+1)^2}{xy^2}, \frac{x^2y^3}{(xy+z+1)^2}, z\right)$

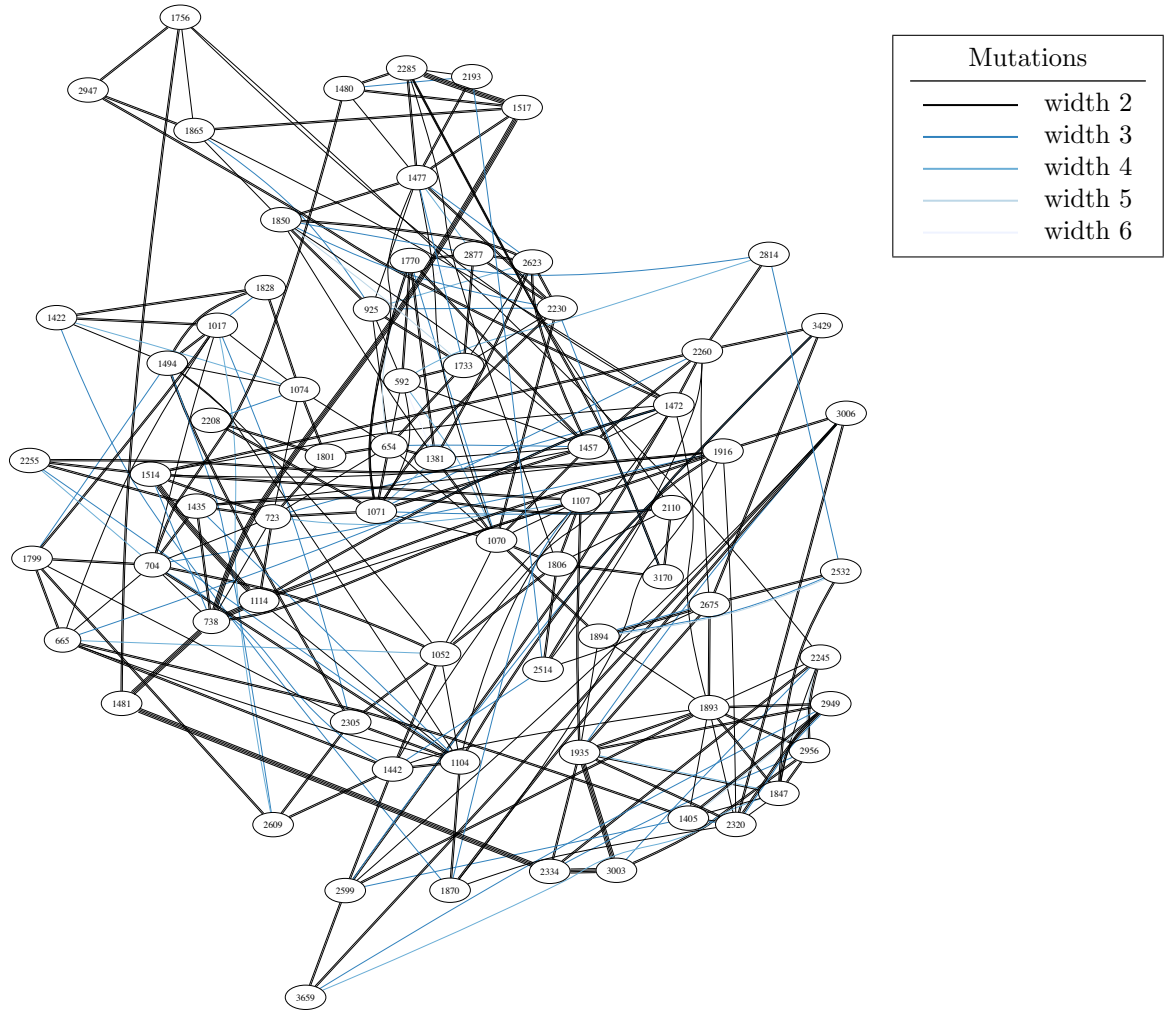

Figure 85b. All mutations between Minkowski polynomials in bucket 85

Bucket 86

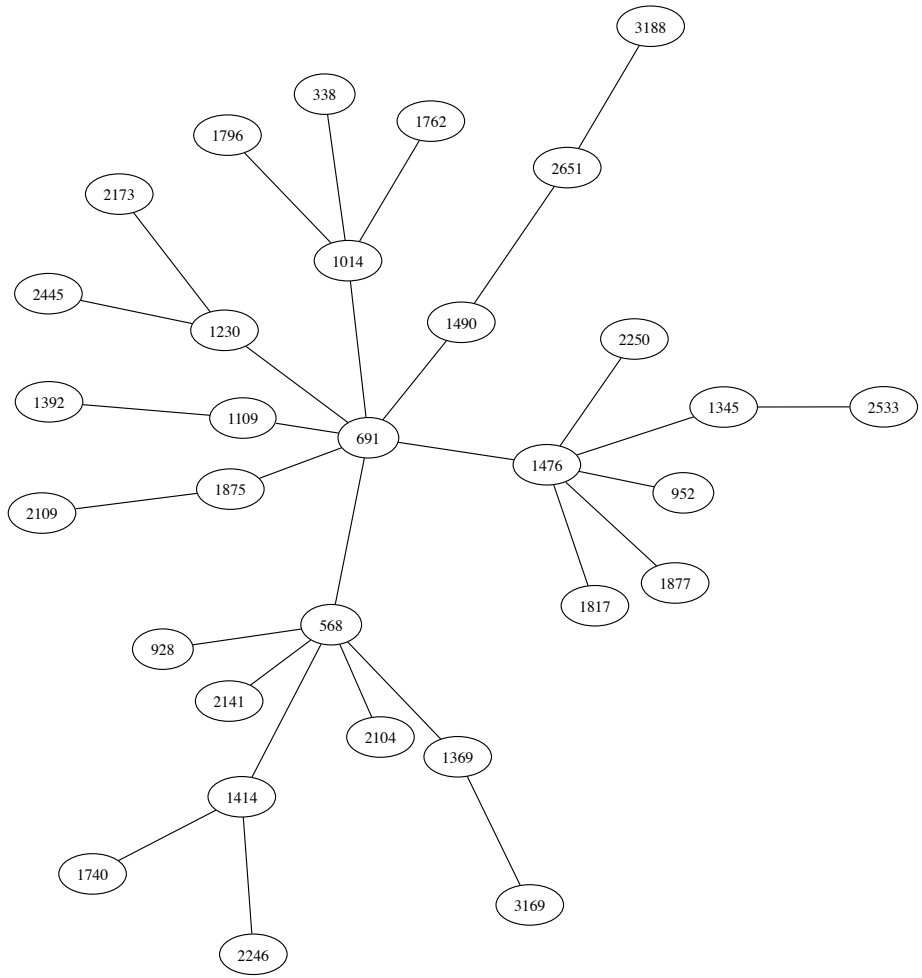

Figure 86a. Selected width-2 mutations between Minkowski polynomials in bucket 86

Table 86. Laurent polynomials and selected mutations for bucket 86.

Node	Laurent polynomial	Mutations from Figure 86a
338	$\frac{x^2}{yz} + x + \frac{2x}{yz} + y + z + \frac{1}{yz} + \frac{2yz}{x} + \frac{y}{x} + \frac{y^2z}{x^2}$	1014: $\left(z, \frac{yz}{x}, \frac{x^2}{x+y}\right)$
568	$x + \frac{x}{y} + \frac{x}{y^2z} + y + z + \frac{2}{y} + \frac{2}{yz} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz}$	691: $\left(\frac{xz+yz+1}{x}, \frac{xz+yz+1}{xyz}, xz\right)$ 928: $\left(x, \frac{xyz+yz+1}{y}, \frac{xy^2z}{xyz+yz+1}\right)$ 1369: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$ 1414: $\left(\frac{yz+1}{z}, x, yz\right)$ 2104: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 2141: $\left(y, \frac{x^2yz}{xyz+1}, \frac{xyz+1}{xy}\right)$
691	$xz + x + yz + y + z + \frac{1}{z} + \frac{1}{y} + \frac{yz}{x} + \frac{2}{x} + \frac{1}{xyz}$	568: $\left(\frac{x+yz+y}{xy}, \frac{x+yz+y}{y^2z}, \frac{xyz}{x+yz+y}\right)$ 1014: $\left(y, \frac{yz+z+1}{x}, \frac{xz}{yz+z+1}\right)$ 1109: $\left(\frac{x(yz+1)}{yz}, z, y\right)$ 1230: $\left(\frac{(z+1)(y+z+1)}{xz}, \frac{(z+1)(y+z+1)}{xy}, \frac{xyz}{(z+1)(y+z+1)}\right)$ 1476: $\left(y, \frac{xy}{yz+y+z}, z\right)$ 1490: $\left(\frac{(yz+1)^2}{xyz}, z, y\right)$ 1875: $\left(y, z, \frac{yz+1}{xyz}\right)$
928	$xz + x + y + z + \frac{1}{z} + \frac{1}{y} + \frac{2}{x} + \frac{1}{xy} + \frac{2}{xyz} + \frac{1}{x^2y} + \frac{1}{x^2y^2z}$	568: $\left(x, \frac{xyz+x+yz}{xy}, \frac{y^2z}{xyz+x+yz}\right)$
952	$xy + x + y + z + \frac{1}{y} + \frac{y}{xz} + \frac{3}{x} + \frac{1}{xz} + \frac{1}{xyz} + \frac{3}{x^2z} + \frac{1}{x^3z^2}$	1476: $\left(\frac{xy+1}{x}, z, \frac{x^2y}{xy+1}\right)$
1014	$x + y + z + \frac{z}{y} + \frac{2}{y} + \frac{1}{yz} + \frac{yz}{x} + \frac{y}{x} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz}$	338: $\left(\frac{z(x+y)}{x}, \frac{yz(x+y)}{x^2}, x\right)$ 691: $\left(\frac{xyz+yz+1}{y}, x, yz\right)$ 1762: $\left(\frac{(y+1)^2(y+z)}{xyz}, \frac{(y+1)^2(y+z)}{xy^2}, y\right)$ 1796: $\left(x, \frac{xy}{x+z+1}, z\right)$

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Table 86 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 86a
1109	$xy+x+\frac{x}{z}+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{1}{x}$	691: $\left(z, \frac{xyz}{yz+1}, \frac{1}{y}\right)$ 1392: $\left(z, y, \frac{yz+y+z}{xy}\right)$
1230	$x+y+z+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	691: $\left(\frac{(yz+1)(xz+yz+1)}{xyz}, xz, yz\right)$ 2173: $\left(x, \frac{(y+1)^2}{xz}, y\right)$ 2445: $\left(x, \frac{xyz}{xy+y+1}, y\right)$
1345	$xy+x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	1476: $\left(\frac{xy+1}{x}, \frac{xyz}{xy+1}, \frac{x^2y}{xy+1}\right)$ 2533: $\left(\frac{x^2z}{xyz+xz+y}, y, \frac{xyz+xz+y}{x}\right)$
1369	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	568: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$ 3169: $\left(y, \frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
1392	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	1109: $\left(\frac{xy+x+y}{yz}, y, x\right)$
1414	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	568: $\left(y, \frac{xz}{z+1}, \frac{z+1}{x}\right)$ 1740: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{x^3z^2}{(xz+y)(xyz+xz+y)}\right)$ 2246: $\left(x, \frac{(xz+1)^2}{x^2yz^2}, z\right)$
1476	$x+yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	691: $\left(\frac{y(xz+x+z)}{x}, x, z\right)$ 952: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, y\right)$ 1345: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{y(xz+1)}{xz}\right)$ 1817: $\left(y, x, \frac{xyz}{(x+1)(xy+1)}\right)$ 1877: $\left(y(z+1), \frac{x}{z+1}, z\right)$ 2250: $\left(\frac{(y+1)(xz+y)}{xy}, \frac{x^2z}{(y+1)(xz+y)}, y\right)$
1490	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y^2z}{x}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	691: $\left(\frac{(yz+1)^2}{xyz}, z, y\right)$ 2651: $\left(x, z, \frac{xy}{(z+1)(x+z)}\right)$

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Table 86 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 86a
1740	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{y^2}{x^3z^2}$	1414: $\left(\frac{(xz+1)(xyz+xz+1)}{x^2z}, y, \frac{x^3yz^2}{(xz+1)(xyz+xz+1)}\right)$
1762	$x+y+z+\frac{z}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1014: $\left(\frac{(z+1)^2(x+y)}{xyz}, \frac{y}{x}, \frac{yz}{x}\right)$
1796	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1014: $\left(x, \frac{y(x+z+1)}{x}, z\right)$
1817	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2y}+\frac{1}{x^2y^2z}$	1476: $\left(y, x, \frac{z(y+1)(xy+1)}{xy}\right)$
1875	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	691: $\left(\frac{xy+1}{xyz}, x, \frac{1}{y}\right)$ 2109: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$
1877	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1476: $\left(y(z+1), \frac{x}{z+1}, z\right)$
2104	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	568: $\left(\frac{(z+1)^2}{xz}, y, z\right)$
2109	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	1875: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$
2141	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	568: $\left(\frac{xyz+1}{xz}, x, \frac{xyz^2}{xyz+1}\right)$
2173	$x+y+z+\frac{z}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1230: $\left(x, z, \frac{(z+1)^2}{xy}\right)$
2246	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	1414: $\left(x, \frac{(xz+1)^2}{x^2yz^2}, z\right)$
2250	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3y^2}{x^2z}+\frac{3y}{x^2z}+\frac{y^3}{x^3z^2}+\frac{y^2}{x^3z^2}$	1476: $\left(\frac{(z+1)(xy+1)}{x}, z, \frac{x^2yz}{(z+1)(xy+1)}\right)$
2445	$x+y+z+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	1230: $\left(x, z, \frac{y(xz+z+1)}{xz}\right)$
2533	$x+yz+y+z+\frac{1}{y}+\frac{4y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{4y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	1345: $\left(\frac{xyz+xz+y}{z}, y, \frac{xz^2}{xyz+xz+y}\right)$
2651	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	1490: $\left(x, \frac{z(y+1)(x+y)}{x}, y\right)$ 3188: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}, y\right)$

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Table 86 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 86a
3169	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1369: $\left(\frac{(yz+1)(x+yz+1)}{y^2z}, x, \frac{y^3z^2}{(yz+1)(x+yz+1)}\right)$
3188	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2651: $\left(\frac{(xy+z+1)^2}{x^2y}, z, \frac{x^3y^2}{(xy+z+1)^2}\right)$

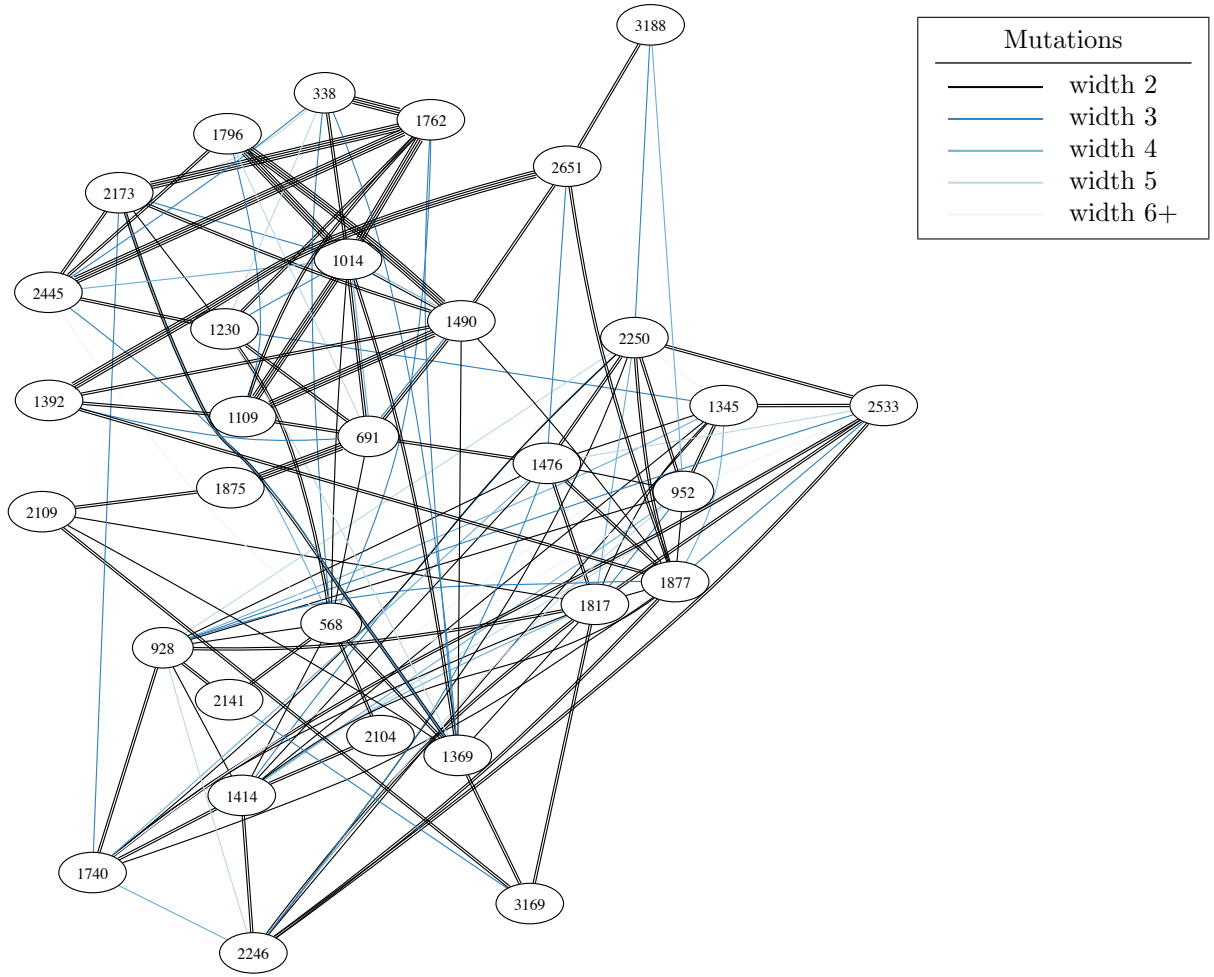

Figure 86b. All mutations between Minkowski polynomials in bucket 86

Bucket 87

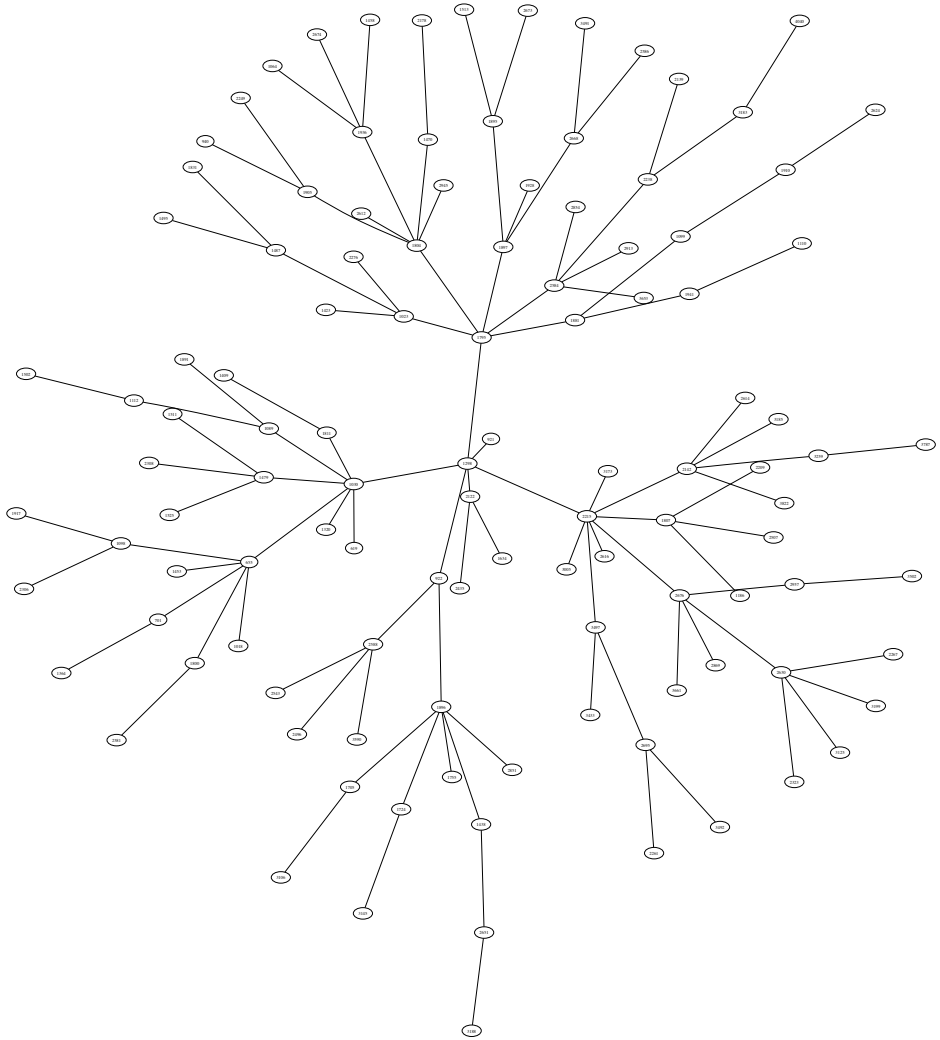

Figure 87a. Selected width-2 mutations between Minkowski polynomials in bucket 87

Table 87. Laurent polynomials and selected mutations for bucket 87.

Node	Laurent polynomial	Mutations from Figure 87a
619	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{x^2}$	1030: $\left(y, \frac{y+z}{xz}, z\right)$
655	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	701: $\left(x, \frac{xz}{x+1}, \frac{x+1}{y}\right)$ 1018: $\left(y, \frac{xy}{yz+y+1}, \frac{yz+y+1}{xz}\right)$ 1030: $\left(\frac{y+z}{yz}, \frac{y+z}{y^2}, x\right)$ 1098: $\left(x, \frac{xz}{x+1}, y\right)$ 1453: $\left(y, \frac{xy^2}{(y+1)^2}, z\right)$ 1800: $\left(y, \frac{y+z}{xz}, \frac{xy}{y+z}\right)$
701	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	655: $\left(x, \frac{x+1}{z}, \frac{y(x+1)}{x}\right)$ 1364: $\left(\frac{yz+(y+1)^2}{xy}, \frac{yz+(y+1)^2}{xyz}, y\right)$
921	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	1298: $\left(\frac{x^2+z(x+y)^2}{x^2yz}, \frac{x^2+z(x+y)^2}{x^2y}, \frac{x^3}{x^2+z(x+y)^2}\right)$
922	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1298: $\left(x, y, \frac{x}{z(xy+x+y)}\right)$ 1896: $\left(x, \frac{yz+1}{z}, yz\right)$ 2588: $\left(x, \frac{x^2y}{(x+1)^2}, z\right)$
940	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2y}$	1905: $\left(x, \frac{(x+1)^2}{xy}, \frac{(x+1)^2}{x^2yz}\right)$
1018	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	655: $\left(\frac{x^2+xyz+yz}{xz}, x, \frac{x}{yz}\right)$
1023	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1423: $\left(x, y, \frac{xyz}{xy+x+1}\right)$ 1487: $\left(y, \frac{y^2z+yz+1}{xyz}, \frac{1}{yz}\right)$ 1795: $\left(y, \frac{1+z(y+1)^2}{xyz}, \frac{1+z(y+1)^2}{xy}\right)$ 2276: $\left(y, \frac{(y+1)(y+z+1)}{xy}, z\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1030	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	619: $\left(\frac{x+z}{yz}, x, z\right)$ 655: $\left(z, \frac{x+y}{xy}, \frac{x+y}{x^2}\right)$ 1089: $\left(\frac{x+1}{xz}, x, \frac{xy}{x+1}\right)$ 1298: $\left(\frac{z+1}{yz}, \frac{x}{z+1}, \frac{y}{z+1}\right)$ 1320: $\left(\frac{1}{y}, \frac{(y+z)(yz+y+z)}{xyz}, \frac{(y+z)(yz+y+z)}{xz^2}\right)$ 1479: $\left(x, y, \frac{yz}{y+1}\right)$ 1811: $\left(y, z, \frac{xz^2}{(z+1)^2}\right)$
1064	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}$	1936: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, z\right)$
1089	$x+\frac{xz}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1030: $\left(y, \frac{z(y+1)}{y}, \frac{y+1}{xy}\right)$ 1112: $\left(\frac{y+1}{x}, y, \frac{y}{z(y+1)}\right)$ 1891: $\left(\frac{xyz}{yz+1}, y, \frac{yz+1}{x}\right)$
1098	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	655: $\left(x, z, \frac{y(x+1)}{x}\right)$ 1917: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 2306: $\left(y, \frac{(z+1)(y+1)}{xz}, \frac{xy}{(z+1)(y+1)}\right)$
1099	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1881: $\left(y, \frac{xyz}{yz+z+1}, z\right)$ 1910: $\left(\frac{(z+1)(y+z+1)}{xz}, y, z\right)$
1110	$x+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	1941: $\left(\frac{1}{y}, \frac{yz+1}{xyz}, z\right)$
1112	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}$	1089: $\left(\frac{y+1}{x}, y, \frac{y}{z(y+1)}\right)$ 1502: $\left(y, \frac{(z+1)(y+1)}{xz}, \frac{1}{z}\right)$
1186	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1807: $\left(x, y, \frac{z(y+1)}{y}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1298	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	921: $\left(\frac{xyz^2+(yz+1)^2}{xyz}, \frac{xyz^2+(yz+1)^2}{xy^2z^2}, \frac{y}{x}\right)$ 922: $\left(x, y, \frac{x}{z(xy+x+y)}\right)$ 1030: $\left(\frac{y(xz+1)}{xz}, \frac{xz+1}{x}, \frac{1}{xz}\right)$ 1795: $\left(x, \frac{xy}{x+1}, z\right)$ 2122: $\left(\frac{(y+1)(y+(y+z)^2)}{xyz}, \frac{(y+1)(y+(y+z)^2)}{xy^2}, y\right)$ 2215: $\left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$
1320	$x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}$	1030: $\left(\frac{(y+z)(xy+xz+y)}{xy^2z}, \frac{1}{x}, \frac{y}{xz}\right)$
1364	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	701: $\left(\frac{xz+y(z+1)^2}{xyz}, z, \frac{x}{y}\right)$
1409	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1811: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
1423	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1023: $\left(x, y, \frac{z(xy+x+1)}{xy}\right)$
1438	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1896: $\left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{yz+1}{x}\right)$ 2651: $\left(x, \frac{xy}{xz+x+z}, z\right)$
1453	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	655: $\left(\frac{y(x+1)^2}{x^2}, x, z\right)$
1458	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	1936: $\left(\frac{(z+1)(x+y)}{xyz}, z, \frac{(z+1)(x+y)}{x^2}\right)$
1470	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y}{x^3z^2}$	1804: $\left(y, \frac{xyz+xz+1}{x^2z}, \frac{xyz+xz+1}{xy}\right)$ 2178: $\left(\frac{xyz+(xz+1)^2}{x^2z}, \frac{xyz+(xz+1)^2}{x^2yz}, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
1479	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1030: $\left(x, y, \frac{z(y+1)}{y}\right)$ 1511: $\left(x, \frac{xz+x+1}{xy}, z\right)$ 1525: $\left(x, \frac{y+1}{z}, y\right)$ 2308: $\left(y, \frac{xyz}{yz+1}, z\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1487	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xyz}$	1023: $\left(\frac{x+z+1}{y}, x, \frac{1}{xz}\right)$ 1495: $\left(x, \frac{x+1}{y}, \frac{y}{xz}\right)$ 1831: $\left(x, \frac{(x+1)(xz+z+1)}{xyz}, \frac{xy}{(x+1)(xz+z+1)}\right)$
1495	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1487: $\left(x, \frac{x+1}{y}, \frac{x+1}{xyz}\right)$
1502	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1112: $\left(\frac{(z+1)(x+1)}{y}, x, \frac{1}{z}\right)$
1511	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2yz}$	1479: $\left(x, \frac{xz+x+1}{xy}, z\right)$
1513	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1895: $\left(\frac{x+yz+z}{xz}, \frac{x+yz+z}{xyz}, \frac{x^2}{x+yz+z}\right)$
1525	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1479: $\left(x, z, \frac{z+1}{y}\right)$
1634	$x+y^2z+2yz+y+z+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	2122: $\left(x, y+z, \frac{y}{xz(y+z)}\right)$
1705	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	1896: $\left(\frac{(x+y)(xz+1)}{x^2yz}, \frac{(x+y)(xz+1)}{x^2}, \frac{x^3z}{(x+y)(xz+1)}\right)$ 3106: $\left(\frac{x^3y^2z^2}{xz+(xyz+1)^2}, y, \frac{xz+(xyz+1)^2}{x^2y^2z}\right)$
1724	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	1896: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{x^2yz}{(yz+1)(x+y)}, yz\right)$ 3145: $\left(x, \frac{x^2yz^2}{x^2z+(xz+1)^2}, \frac{x^2yz}{x^2z+(xz+1)^2}\right)$
1755	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	1896: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{(yz+1)(xz+1)}{x^2z}, yz\right)$
1795	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1023: $\left(\frac{y+z(x+1)^2}{xyz}, x, \frac{z}{y}\right)$ 1298: $\left(x, \frac{y(x+1)}{x}, z\right)$ 1804: $\left(x, y, \frac{xz}{x+y+1}\right)$ 1881: $\left(x, y, \frac{1}{z(y+1)}\right)$ 1897: $\left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$ 2584: $\left(x, y, \frac{x+1}{xyz}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1800	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	655: $\left(\frac{yz+1}{y}, x, \frac{x}{yz}\right)$ 2581: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1804	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1470: $\left(\frac{x^2z+xz+y}{xyz}, x, \frac{x^2z^2}{x^2z+xz+y}\right)$ 1795: $\left(x, y, \frac{z(x+y+1)}{x}\right)$ 1905: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 1936: $\left(x, \frac{xyz+x+yz}{xz}, \frac{1}{yz}\right)$ 2612: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$ 2945: $\left(\frac{x^2yz}{xyz+1}, y, \frac{xyz+1}{xy}\right)$
1807	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1186: $\left(x, y, \frac{yz}{y+1}\right)$ 2209: $\left(x, y, \frac{y+1}{xz}\right)$ 2215: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$ 2507: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1811	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1030: $\left(\frac{z(y+1)^2}{y^2}, x, y\right)$ 1409: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
1831	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{1}{x^2yz}$	1487: $\left(x, \frac{(x+1)(x+yz+1)}{xy}, \frac{1}{yz}\right)$
1881	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1099: $\left(\frac{y(xz+z+1)}{xz}, x, z\right)$ 1795: $\left(x, y, \frac{1}{z(y+1)}\right)$ 1941: $\left(x, \frac{yz+1}{z}, yz\right)$
1891	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1089: $\left(\frac{xz+1}{z}, y, \frac{xz}{y}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1895	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1513: $\left(\frac{xyz+x+y}{xy}, \frac{x}{y}, \frac{xyz+x+y}{x^2yz}\right)$ 1897: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$ 2673: $\left(\frac{(xz+y+1)(xyz+xz+1)}{x^2yz}, y, \frac{(xz+y+1)(xyz+xz+1)}{x^3yz^2}\right)$
1896	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	922: $\left(x, \frac{yz}{z+1}, \frac{z+1}{y}\right)$ 1438: $\left(\frac{yz+1}{z}, \frac{yz+1}{x}, \frac{xyz}{yz+1}\right)$ 1705: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{(yz+1)(xz+1)}{x^2yz^2}, \frac{xy^2z^2}{(yz+1)(xz+1)}\right)$ 1724: $\left(\frac{(z+1)(xy+z)}{xz}, \frac{(z+1)(xy+z)}{x^2y}, \frac{x^2yz}{(z+1)(xy+z)}\right)$ 1755: $\left(\frac{(z+1)(xz+y)}{xyz}, \frac{(z+1)(xz+y)}{x^2z}, \frac{x^2z^2}{(z+1)(xz+y)}\right)$ 2851: $\left(\frac{x^2yz}{xyz+y+1}, \frac{xy}{xyz+y+1}, \frac{xyz+y+1}{x}\right)$
1897	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1795: $\left(x, \frac{z+1}{yz}, \frac{z+1}{y}\right)$ 1895: $\left(x, y, \frac{xy}{z(xy+y+1)}\right)$ 1928: $\left(x, y, \frac{y}{z(y+1)}\right)$ 2668: $\left(x, z, \frac{x+1}{xy}\right)$
1905	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	940: $\left(x, \frac{(x+1)^2}{xy}, \frac{y}{xz}\right)$ 1804: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 2249: $\left(x, \frac{(x+1)^2(x+yz)}{x^2y}, \frac{1}{yz}\right)$
1910	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1099: $\left(\frac{(z+1)(y+z+1)}{xz}, y, z\right)$ 2624: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1917	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1098: $\left(\frac{(z+1)^2}{xz}, y, z\right)$
1928	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1897: $\left(x, y, \frac{y}{z(y+1)}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
1936	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1064: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, z\right)$ 1458: $\left(\frac{(y+1)(xy+z)}{xyz}, \frac{(y+1)(xy+z)}{x^2y^2}, y\right)$ 1804: $\left(x, \frac{xy}{xz+x+1}, \frac{xz+x+1}{xyz}\right)$ 2674: $\left(\frac{(y+1)(xz+1)(xz+y)}{x^2yz}, \frac{(y+1)(xz+1)(xz+y)}{x^3yz^2}, y\right)$
1941	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1110: $\left(\frac{x+z}{yz}, \frac{1}{x}, z\right)$ 1881: $\left(x, \frac{yz}{z+1}, \frac{z+1}{y}\right)$
2122	$x+y+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	1298: $\left(\frac{(z+1)(x^2+z(x+y)^2)}{x^2yz}, z, \frac{yz}{x}\right)$ 1634: $\left(x, \frac{xy^2z}{xyz+1}, \frac{y}{xyz+1}\right)$ 2435: $\left(x, \frac{x^3y^3z^2}{(xyz+1)(x^2yz+(xyz+1)^2)}, \frac{x^2y^2z}{(xyz+1)(x^2yz+(xyz+1)^2)}\right)$
2139	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	2238: $\left(x, \frac{(yz+1)^2}{y^2z}, \frac{y^3z^2}{(yz+1)^2}\right)$
2142	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}$	2215: $\left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{y+z(xy+1)^2}{x^2y^2}, \frac{x^3y^2z}{y+z(xy+1)^2}\right)$ 2614: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$ 3185: $\left(\frac{xyz+(xy+1)^2}{x^2y}, z, \frac{x^3y^2}{xyz+(xy+1)^2}\right)$ 3259: $\left(\frac{x^2z}{xz+y}, \frac{1}{y}, \frac{xz+y}{x}\right)$ 3822: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
2178	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	1470: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x}{y}, \frac{x^3yz^2}{x^2z+y(xz+1)^2}\right)$
2209	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1807: $\left(x, y, \frac{y+1}{xz}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
2215	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	1298: $\left(x, \frac{z+1}{yz}, \frac{z+1}{y}\right)$ 1807: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$ 2142: $\left(\frac{x+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{x+y(xz+1)^2}, \frac{x^2y^2z^2}{x+y(xz+1)^2}\right)$ 2616: $\left(x, z, \frac{xz}{y(xz+x+1)}\right)$ 2676: $\left(x, y, \frac{xy}{z(xy+1)}\right)$ 3005: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3173: $\left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, \frac{xyz+z+1}{x}\right)$ 3497: $\left(x, y, \frac{x^2y^2}{z(xy+1)(xy+x+1)}\right)$
2238	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	2139: $\left(x, \frac{(yz+1)^2}{y^2z}, \frac{y^3z^2}{(yz+1)^2}\right)$ 2584: $\left(\frac{x^2yz}{xyz+1}, y, \frac{xyz+1}{xy}\right)$ 3183: $\left(y, \frac{x^2yz}{xyz+xz+1}, \frac{xyz+xz+1}{xy}\right)$
2249	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3z}{x}+\frac{1}{x}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{1}{x^2y}+\frac{z}{x^3}$	1905: $\left(x, \frac{(x+1)^2(xz+1)}{x^2yz}, \frac{x^2y}{(x+1)^2(xz+1)}\right)$
2261	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	2695: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$
2267	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	2630: $\left(x, \frac{x^2z}{y(x+1)(xz+y)}, \frac{z}{y}\right)$
2276	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1023: $\left(\frac{(x+1)(x+z+1)}{xy}, x, z\right)$
2306	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1098: $\left(\frac{(x+1)(x+yz)}{xy}, x, \frac{x}{yz}\right)$
2308	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1479: $\left(\frac{y(xz+1)}{xz}, x, z\right)$
2323	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2630: $\left(x, \frac{x}{y(x+1)}, \frac{z}{y}\right)$
2435	$x+yz^2+2yz+y+z+\frac{4z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{6}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}+\frac{4}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2122: $\left(x, \frac{(y+z)(xyz+(y+z)^2)}{xyz}, \frac{y^2}{(y+z)(xyz+(y+z)^2)}\right)$
2496	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	2588: $\left(\frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}, z\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
2507	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	1807: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
2543	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2588: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$
2581	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1800: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
2584	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1795: $\left(x, y, \frac{x+1}{xyz}\right)$ 2238: $\left(\frac{xyz+1}{yz}, y, \frac{xyz^2}{xyz+1}\right)$ 2854: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$ 2913: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 3653: $\left(\frac{(xyz+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+1)(xyz+(y+1)^2)}\right)$
2586	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2668: $\left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$
2588	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	922: $\left(x, \frac{y(x+1)^2}{x^2}, z\right)$ 2496: $\left(\frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}, z\right)$ 2543: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$ 3590: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}, y\right)$
2612	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	1804: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
2614	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	2142: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$
2616	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	2215: $\left(x, \frac{xy}{z(xy+x+1)}, y\right)$
2624	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1910: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
2630	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2267: $\left(x, \frac{x^2z}{y(x+1)(xz+1)}, \frac{x^2z^2}{y(x+1)(xz+1)}\right)$ 2323: $\left(x, \frac{x}{y(x+1)}, \frac{xz}{y(x+1)}\right)$ 2676: $\left(\frac{xyz+x+z}{xz}, \frac{xyz+x+z}{x^2yz}, \frac{1}{yz}\right)$ 3125: $\left(x, y, \frac{(xy+x+y)^2}{x^3z}\right)$ 3199: $\left(x, \frac{x^3yz}{(x+1)(xz+1)(xz+x+1)}, \frac{x^3yz^2}{(x+1)(xz+1)(xz+x+1)}\right)$
2651	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z^2}{x^2y}+\frac{2z}{x^2y}+\frac{1}{x^2y}$	1438: $\left(x, \frac{y(xz+x+z)}{x}, z\right)$ 3188: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}, y\right)$
2668	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1897: $\left(x, \frac{x+1}{xz}, y\right)$ 2586: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}, y\right)$ 3491: $\left(\frac{x^2yz}{xyz+y+1}, \frac{xyz+y+1}{xy}, y\right)$
2673	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1895: $\left(\frac{(x+yz+z)(xy+x+z)}{x^2yz}, y, \frac{x^3y}{(x+yz+z)(xy+x+z)}\right)$
2674	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1936: $\left(\frac{(z+1)(x+y)(x+yz)}{x^2yz}, z, \frac{x^3z}{(z+1)(x+y)(x+yz)}\right)$
2676	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	2215: $\left(x, y, \frac{xy}{z(xy+1)}\right)$ 2630: $\left(\frac{xz+x+y}{xy}, \frac{x^2}{xz+x+y}, \frac{xz+x+y}{x^2z}\right)$ 2869: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{xyz}{xz+1}\right)$ 2957: $\left(\frac{x^2z}{xz+y}, \frac{xz+y}{xyz}, \frac{xy}{xz+y}\right)$ 3661: $\left(\frac{(xyz+xy+1)(x^2y^2z+xyz+1)}{x^3y^2z}, \frac{x^4y^3z}{(xyz+xy+1)(x^2y^2z+xyz+1)}, \frac{(xyz+xy+1)(x^2y^2z+xyz+1)}{x^4y^3z^2}\right)$
2695	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	2261: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$ 3492: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}, y\right)$ 3497: $\left(x, y, \frac{z(x+1)(xy+x+1)}{x^2y}\right)$
2851	$x+yz+y+z+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1896: $\left(\frac{xz+yz+1}{z}, yz, \frac{xz}{y(xz+yz+1)}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
2854	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z}$	2584: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
2869	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}+\frac{2y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	2676: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy^2}{xy+1}\right)$
2913	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	2584: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
2945	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1804: $\left(\frac{xyz+1}{yz}, y, \frac{xyz^2}{xyz+1}\right)$
2957	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{3y}{x^2}+\frac{3y}{x^2z}+\frac{3y^2}{x^3z}+\frac{y^2}{x^3z^2}+\frac{y^3}{x^4z^2}$	2676: $\left(x+z, \frac{x+z}{xy}, \frac{1}{yz}\right)$ 3502: $\left(x, \frac{x^4z^2}{y(x^2z+xz+1)(x^2z+(xz+1)^2)}, \frac{x^4z^3}{y(x^2z+xz+1)(x^2z+(xz+1)^2)}\right)$
3005	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	2215: $\left(x, y, \frac{xz}{x+1}\right)$
3106	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	1705: $\left(\frac{xz+(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{xz+(xyz+1)^2}\right)$
3125	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{2y}{x^2}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{3y^2}{x^3z}+\frac{3y}{x^3z}+\frac{y^2}{x^4z}$	2630: $\left(x, y, \frac{(xy+x+y)^2}{x^3z}\right)$
3145	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	1724: $\left(x, \frac{x^2yz+(xy+z)^2}{x^2y}, \frac{y}{z}\right)$
3173	$x+yz+y+z+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3z}{x^2y}+\frac{6}{x^2y}+\frac{3}{x^2yz}+\frac{z}{x^3y^2}+\frac{3}{x^3y^2}+\frac{3}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2215: $\left(\frac{xyz+y+z}{yz}, \frac{xy^2z}{xyz+y+z}, \frac{z}{y}\right)$
3183	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{2}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2238: $\left(\frac{xyz+yz+1}{xz}, x, \frac{xyz^2}{xyz+yz+1}\right)$ 4040: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$

Continued on next page

Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
3185	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2z}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2142: $\left(\frac{xyz+(xz+1)^2}{x^2z}, \frac{x^3z^2}{xyz+(xz+1)^2}, y\right)$
3188	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2651: $\left(\frac{(xy+z+1)^2}{x^2y}, z, \frac{x^3y^2}{(xy+z+1)^2}\right)$
3199	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2630: $\left(x, \frac{(x+1)(xz+y)(xy+xz+y)}{x^3z}, \frac{z}{y}\right)$
3259	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{3y}{x^2z}+\frac{2y}{x^2z^2}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{3y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{y}{x^4z^3}$	2142: $\left(\frac{xyz+1}{yz}, \frac{1}{y}, \frac{xyz^2}{xyz+1}\right)$ 3787: $\left(x, \frac{x^4z^3}{y(x^2z+xz+1)(x^2z+(xz+1)^2)}, z\right)$
3433	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{4z}{x}+\frac{2}{x}+\frac{4z}{xy}+\frac{4}{xy}+\frac{yz}{x^2}+\frac{5z}{x^2}+\frac{6z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^3}+\frac{4z}{x^3y}+\frac{z}{x^4y}$	3497: $\left(x, \frac{x^2y+z(x+1)^2}{x^2yz}, \frac{z}{y}\right)$
3491	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2668: $\left(\frac{xyz+z+1}{yz}, z, \frac{xy^2z}{xyz+z+1}\right)$
3492	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2695: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}\right)$
3497	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{z}{x^2}+\frac{5z}{x^2y}+\frac{2}{x^2y}+\frac{3z}{x^2y^2}+\frac{2z}{x^3y}+\frac{3z}{x^3y^2}+\frac{z}{x^4y^2}$	2215: $\left(x, y, \frac{x^2y^2}{z(xy+1)(xy+x+1)}\right)$ 2695: $\left(x, y, \frac{x^2yz}{(x+1)(xy+x+1)}\right)$ 3433: $\left(x, \frac{x^2+z(x+1)^2}{x^2yz}, \frac{x^2+z(x+1)^2}{x^2y}\right)$
3502	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{4y}{x^2}+\frac{5y}{x^2z}+\frac{3}{x^2z}+\frac{6y}{x^3z}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{4y}{x^4z^2}+\frac{y}{x^5z^3}$	2957: $\left(x, \frac{x^4z^2}{(x^2z+xz+y)(x^2yz+(xz+y)^2)}, \frac{z}{y}\right)$
3590	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{8}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2588: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}\right)$
3653	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2z}+\frac{5}{x^2yz}+\frac{5}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{3}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2584: $\left(\frac{(xyz+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+1)(xyz+(y+1)^2)}\right)$

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Table 87 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 87a
3661	$x+yz+y+z+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2}+\frac{6}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{3}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	2676: $\left(\frac{(xyz+x+z)(x^2y+x+z)}{x^3yz}, \frac{x^4y^2z}{(xyz+x+z)(x^2y+x+z)}, \frac{1}{yz}\right)$
3787	$x+y+\frac{y}{z}+z+\frac{1}{y}+\frac{2y}{x}+\frac{4y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{7y}{x^2z}+\frac{3y}{x^2z^2}+\frac{4}{x^2z}+\frac{4y}{x^3z}+\frac{8y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{6y}{x^4z^2}+\frac{3y}{x^4z^3}+\frac{4y}{x^5z^3}+\frac{y}{x^6z^4}$	3259: $\left(x, \frac{x^4z^3}{y(x^2z+xz+1)(x^2z+(xz+1)^2)}, z\right)$
3822	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{3}{x^3z^2}+\frac{7}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{3}{x^4yz^3}+\frac{3}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	2142: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$
4040	$x+y+z+\frac{z}{y}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{4}{x^2z}+\frac{8}{x^2y}+\frac{5}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{12}{x^3yz}+\frac{2}{x^3yz^2}+\frac{5}{x^3y^2}+\frac{8}{x^4yz^2}+\frac{10}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{10}{x^5y^2z^2}+\frac{5}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	3183: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{x^3z^2}{x^2yz+(xz+1)^2}\right)$

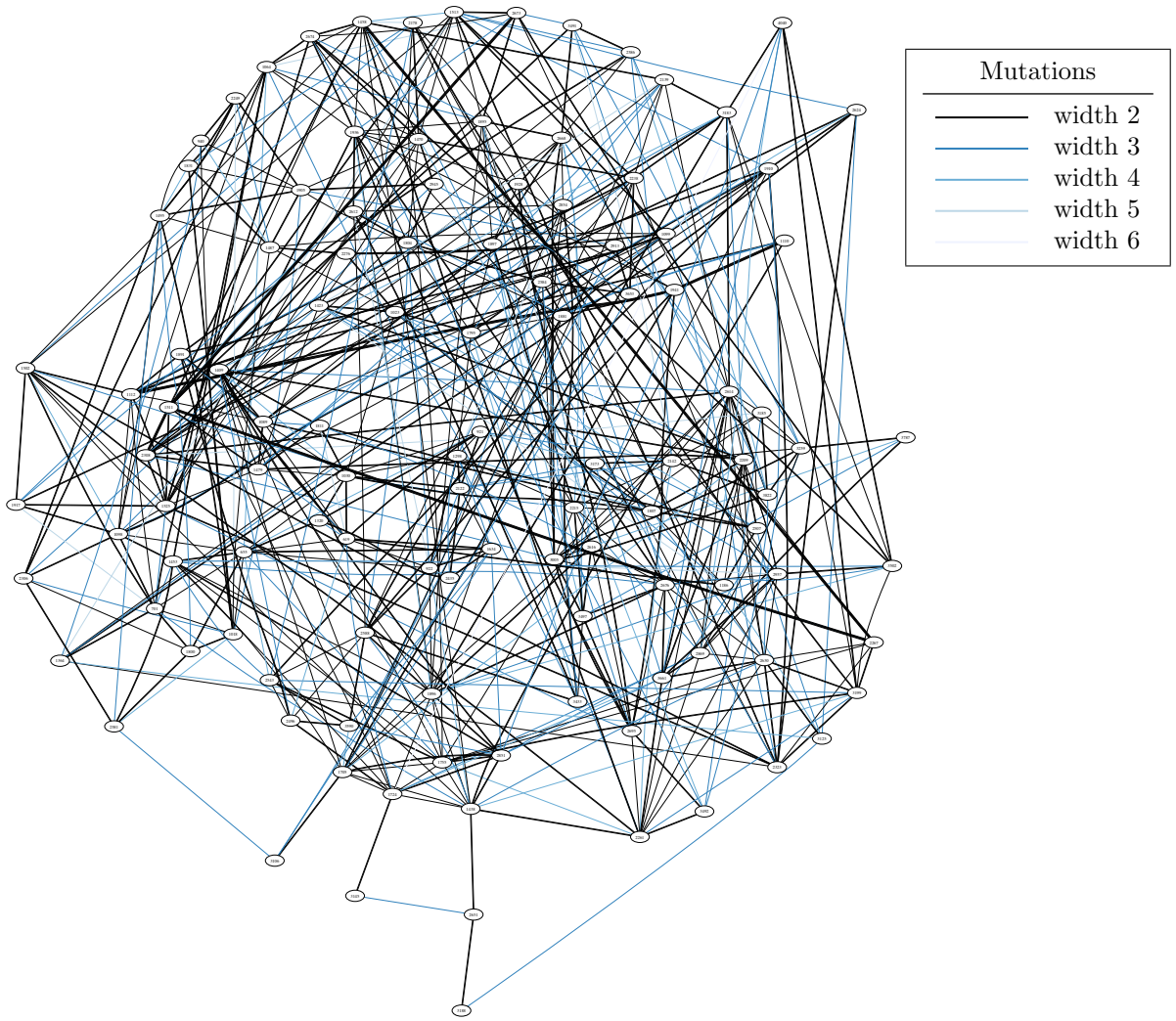

FIGURE 87B. All mutations between Minkowski polynomials in bucket 87

Bucket 88

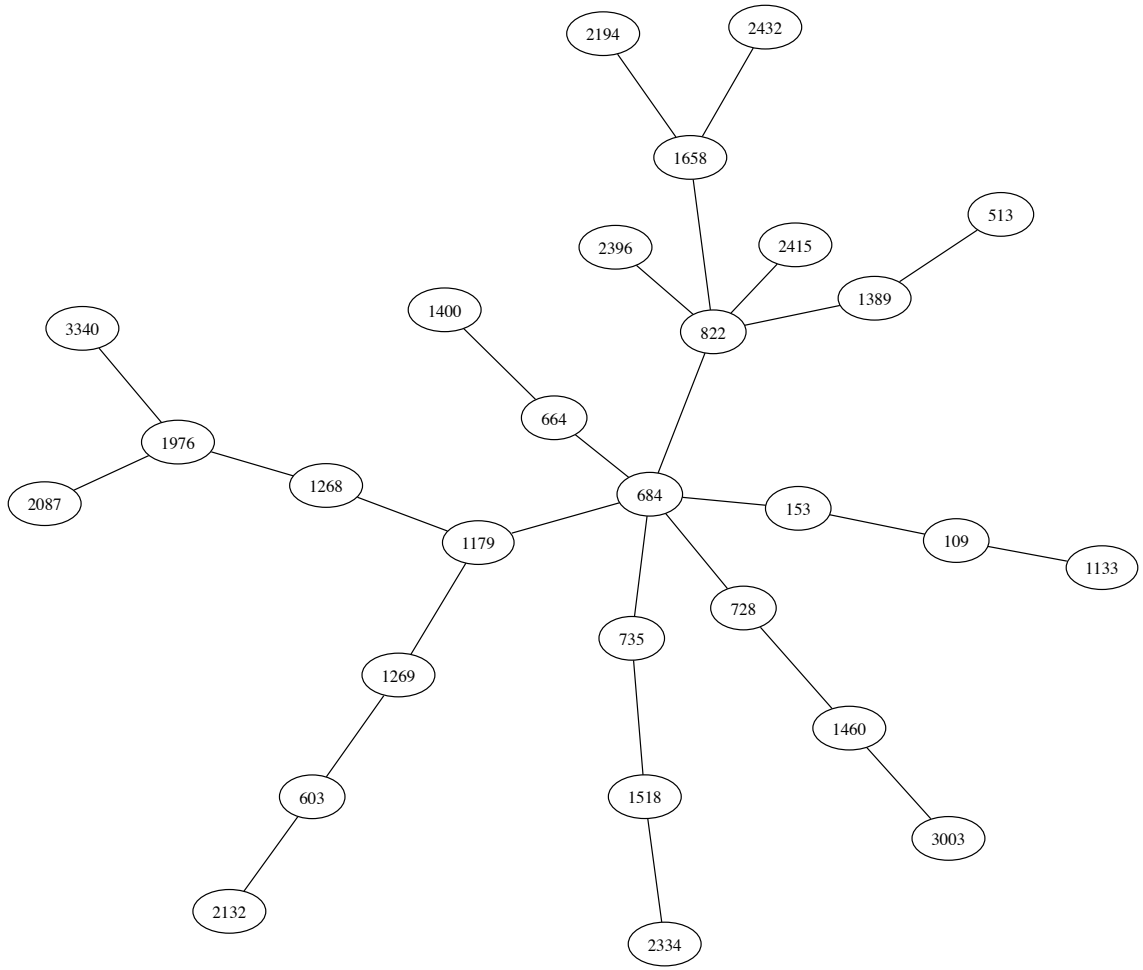

Figure 88a. Selected width-2 mutations between Minkowski polynomials in bucket 88

Table 88. Laurent polynomials and selected mutations for bucket 88.

Node	Laurent polynomial	Mutations from Figure 88a
109	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+\frac{2}{yz}+\frac{1}{x}$	153: $\left(\frac{x^2}{x+y},\frac{x^2}{y^2z},\frac{yz}{x}\right)$ 1133: $\left(\frac{x^2yz^2}{xyz^2+(z+1)^2},\frac{x}{xyz^2+(z+1)^2},z\right)$
153	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+y+z+\frac{2y}{x}+\frac{1}{x}+\frac{y}{x^2}$	109: $\left(\frac{x(yz+1)}{yz},\frac{x(yz+1)}{y^2z^2},yz^2\right)$ 684: $\left(z,\frac{z(x+y)}{xy},\frac{y^2}{x+y}\right)$
513	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	1389: $\left(x,y+z,\frac{y}{z(y+z)}\right)$
603	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xyz}+\frac{1}{x^2z}$	1269: $\left(\frac{(xz+y+1)^2}{x^2yz},\frac{(xz+y+1)^2}{x^2z},\frac{x^3z^2}{(xz+y+1)^2}\right)$ 2132: $\left(y,\frac{xyz+(xz+1)^2}{x^2z},\frac{x^3z^2}{xyz+(xz+1)^2}\right)$
664	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xyz}$	684: $\left(\frac{(z+1)(x+y)}{xy},\frac{(z+1)(x+y)}{xyz},\frac{x^2z}{(z+1)(x+y)}\right)$ 1400: $\left(\frac{xyz+(xz+1)^2}{x^2z},y,\frac{xz}{y}\right)$
684	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	153: $\left(\frac{x+yz}{y},\frac{x(x+yz)}{y^2z},x\right)$ 664: $\left(\frac{(yz+1)(x+y)}{xy},\frac{(yz+1)(x+y)}{xy^2z},\frac{x}{y}\right)$ 728: $\left(\frac{y+1}{z},x,y\right)$ 735: $\left(\frac{y(x+z)}{x},x+z,\frac{x}{z}\right)$ 822: $\left(x,y,\frac{xy}{z(xy+x+y)}\right)$ 1179: $\left(\frac{xyz+(y+1)^2}{xy},\frac{x^2yz}{xyz+(y+1)^2},y\right)$
728	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	684: $\left(y,z,\frac{z+1}{x}\right)$ 1460: $\left(x,\frac{xz+x+z}{xyz},\frac{1}{z}\right)$
735	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{z}{x}+\frac{1}{x}$	684: $\left(\frac{yz}{z+1},\frac{xz}{z+1},\frac{y}{z+1}\right)$ 1518: $\left(\frac{x}{yz+z+1},\frac{1}{y},\frac{1}{z}\right)$

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Table 88 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 88a
822	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{z}{x^2}$	684: $\left(x, y, \frac{xy}{z(xy+x+y)}\right)$ 1389: $\left(\frac{x+y+z}{xz}, \frac{x+y+z}{xy}, \frac{x+y+z}{x^2}\right)$ 1658: $\left(y, \frac{x+z}{xz}, \frac{x+z}{x^2}\right)$ 2396: $\left(y, \frac{x^2y^2z}{xy^2z+(y+1)^2}, \frac{xy^2}{xy^2z+(y+1)^2}\right)$ 2415: $\left(\frac{(xyz+y+z)^2}{x^2y^2z}, \frac{(xyz+y+z)^2}{x^2yz^2}, \frac{(xyz+y+z)^2}{x^3y^2z^2}\right)$
1133	$xy^2z^2+2xyz+x+yz^2+4yz+y+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	109: $\left(x+y(z+1)^2, \frac{x}{yz^2(x+y(z+1)^2)}, z\right)$
1179	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	684: $\left(\frac{xyz+(z+1)^2}{xz}, z, \frac{x^2yz}{xyz+(z+1)^2}\right)$ 1268: $\left(x, \frac{1}{y}, z(y+1)^2\right)$ 1269: $\left(x, y, \frac{(y+1)^3}{x^2yz}\right)$
1268	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1179: $\left(x, \frac{1}{y}, \frac{y^2z}{(y+1)^2}\right)$ 1976: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, \frac{1}{y(x^2z+(xz+1)^2)}\right)$
1269	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	603: $\left(\frac{(xyz+x+y)^2}{x^2y^2z}, \frac{y}{x}, \frac{x^2y^3z^2}{(xyz+x+y)^2}\right)$ 1179: $\left(x, y, \frac{(y+1)^3}{x^2yz}\right)$
1389	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	513: $\left(x, \frac{y^2z}{yz+1}, \frac{y}{yz+1}\right)$ 822: $\left(\frac{xy+xz+yz}{xyz}, \frac{xy+xz+yz}{x^2y}, \frac{xy+xz+yz}{xy^2}\right)$
1400	$x+\frac{xz}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	664: $\left(\frac{x(y+1)}{y}, y, \frac{1}{xz(y+1)}\right)$
1460	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	728: $\left(x, \frac{xz+x+1}{xy}, \frac{1}{z}\right)$ 3003: $\left(\frac{x^2yz}{xyz+(y+1)^2}, \frac{xyz+(y+1)^2}{xy}, \frac{1}{y}\right)$
1518	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	735: $\left(\frac{x(yz+y+1)}{yz}, \frac{1}{y}, \frac{1}{z}\right)$ 2334: $\left(x, \frac{xz+z+1}{xyz}, z\right)$

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Table 88 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 88a
1658	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	$822\colon \left(\frac{x+z}{xz}, y, \frac{x+z}{x^2}\right)$ $2194\colon \left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{xyz}{xz+1}\right)$ $2432\colon \left(\frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2z}, \frac{x^2yz^2}{(xz+1)^2}\right)$
1976	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{4}{x}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{4y}{x^3z}+\frac{y}{x^4z^2}$	$1268\colon \left(x, \frac{x^2y^2z}{x^2yz+(xyz+1)^2}, \frac{1}{x^2yz}\right)$ $2087\colon \left(\frac{xy^2z+(yz+1)^2}{xyz}, \frac{xy^2z+(yz+1)^2}{x^2y^2z}, \frac{xy^2z^2}{xy^2z+(yz+1)^2}\right)$ $3340\colon \left(\frac{(x^2y^2z+(xyz+1)^2)^2}{x^4y^3z^2}, \frac{(x^2y^2z+(xyz+1)^2)^2}{x^5y^4z^2}, \frac{x^3y^2z}{(x^2y^2z+(xyz+1)^2)^2}\right)$
2087	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	$1976\colon \left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x^3z}{x^2z+y(xz+1)^2}, \frac{x^2z+y(xz+1)^2}{x^2}\right)$
2132	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	$603\colon \left(\frac{xyz+(yz+1)^2}{y^2z}, x, \frac{y^3z^2}{xyz+(yz+1)^2}\right)$
2194	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	$1658\colon \left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy^2}{xy+1}\right)$
2334	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	$1518\colon \left(x, \frac{xz+z+1}{xyz}, z\right)$
2396	$x+y+z+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	$822\colon \left(\frac{x^2y+z(x+1)^2}{x^2}, x, \frac{x^2y}{z(x^2y+z(x+1)^2)}\right)$
2415	$x+y+z+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	$822\colon \left(\frac{(xy+xz+yz)^2}{x^2y^2z}, \frac{x^2y^3}{(xy+xz+yz)^2}, \frac{x^3y^2}{(xy+xz+yz)^2}\right)$
2432	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{1}{x^2yz^2}+\frac{2y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	$1658\colon \left(\frac{(xy+1)^2}{xy^2}, \frac{z(xy+1)^2}{x^2y^2}, \frac{x^2y^3}{(xy+1)^2}\right)$
3003	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	$1460\colon \left(\frac{xyz+(z+1)^2}{yz}, \frac{1}{z}, \frac{xy^2z}{xyz+(z+1)^2}\right)$
3340	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{6z}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{4z}{x^2y}+\frac{10}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{6}{x^3y^2}+\frac{6}{x^3y^2z}+\frac{4}{x^4y^3z}+\frac{1}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	$1976\colon \left(\frac{(x^2z+y(xz+1)^2)^2}{x^4yz^2}, \frac{x^5z^2}{(x^2z+y(xz+1)^2)^2}, \frac{y}{x^2z}\right)$

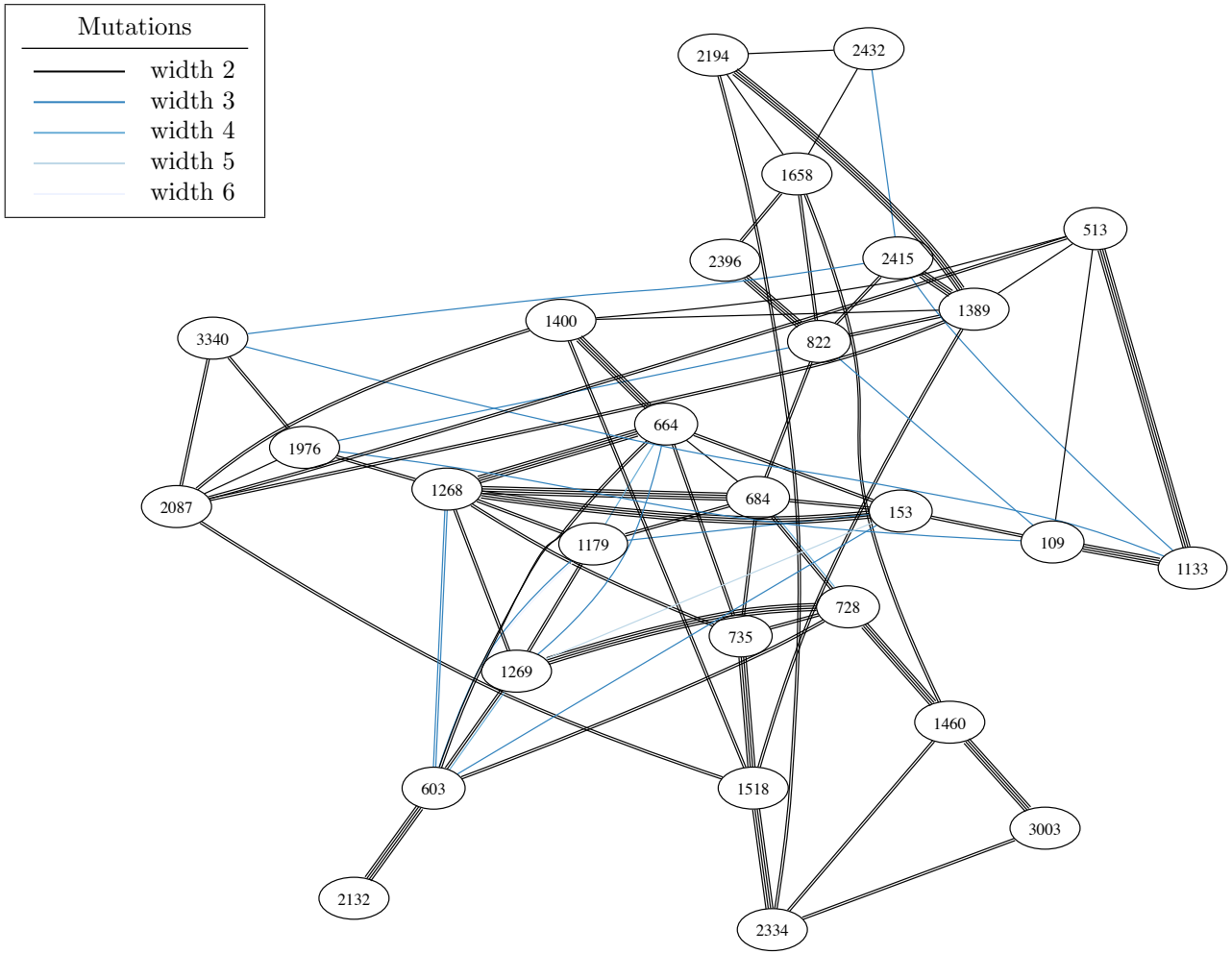

FIGURE 88B. All mutations between Minkowski polynomials in bucket 88

Bucket 89

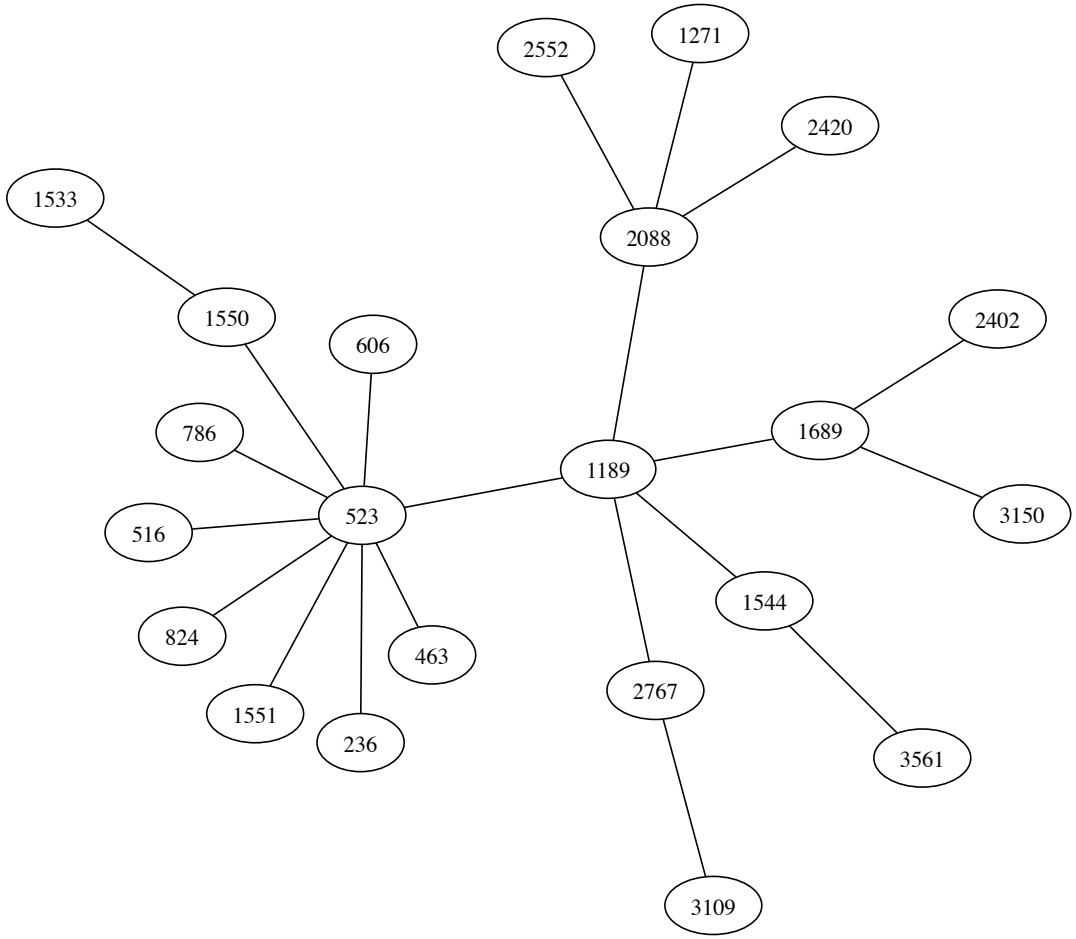

Figure 89a. Selected width-2 mutations between Minkowski polynomials in bucket 89

Table 89. Laurent polynomials and selected mutations for bucket 89.

Node	Laurent polynomial	Mutations from Figure 89a
236	$xz^2+2xz+x+\frac{x}{yz}+y+2z+\frac{2}{z}+\frac{1}{yz^2}+\frac{1}{x}$	523: $\left(\frac{xy}{x+z}, \frac{x^2}{x+z}, \frac{x+z}{xz}\right)$
463	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	523: $\left(\frac{(y+z)^2}{yz^2}, \frac{(y+z)^2}{xyz}, \frac{xz^2}{(y+z)^2}\right)$
516	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y^2z^2}{x}+\frac{3yz}{x}+\frac{3}{x}+\frac{1}{xyz}$	523: $\left(y+z, \frac{y+z}{xz}, \frac{xy}{y+z}\right)$
523	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{2}{z}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	236: $\left(\frac{yz+1}{z}, \frac{x(yz+1)}{yz}, \frac{yz+1}{yz^2}\right)$ 463: $\left(\frac{(yz+1)^2}{y^2z}, \frac{(yz+1)^2}{xy^2z^2}, \frac{(yz+1)^2}{xyz}\right)$ 516: $\left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{x}{yz+1}\right)$ 606: $\left(\frac{x+y}{yz}, x, y\right)$ 786: $\left(\frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}, \frac{xy^2z}{xyz+x+y}\right)$ 824: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{(yz+1)(x+y)}{y^3z}, \frac{(yz+1)(x+y)}{xy^2z}\right)$ 1189: $\left(x, \frac{xy^2z}{y+x(y+1)^2}, y\right)$ 1550: $\left(\frac{(y+z)(xyz+y+z)}{xyz}, \frac{x^2y^2z}{(y+z)(xyz+y+z)}, \frac{x^2yz^2}{(y+z)(xyz+y+z)}\right)$ 1551: $\left(\frac{x^2yz^2}{xyz^2+z+1}, \frac{x}{xyz^2+z+1}, \frac{xz}{xyz^2+z+1}\right)$
606	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{1}{x}$	523: $\left(y, z, \frac{y+z}{xz}\right)$
786	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{3}{y^2z}+\frac{2}{x}+\frac{3}{xyz}+\frac{1}{x^2z}$	523: $\left(\frac{xyz+y+z}{xz}, \frac{xyz+y+z}{xy}, \frac{x^2yz}{xyz+y+z}\right)$
824	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	523: $\left(\frac{(y+z)(x+z)}{xz^2}, \frac{(y+z)(x+z)}{xyz}, \frac{x^2y}{(y+z)(x+z)}\right)$
1189	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	523: $\left(x, z, \frac{y(z+x(z+1)^2)}{xz^2}\right)$ 1544: $\left(\frac{x^2z}{xz+1}, \frac{xyz}{xz+1}, \frac{xz+1}{x}\right)$ 1689: $\left(\frac{x+y+z}{xz}, \frac{x+y+z}{xy}, \frac{x^2}{x+y+z}\right)$ 2088: $\left(\frac{xy+1}{x}, z, \frac{x^2y}{xy+1}\right)$ 2767: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
1271	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	2088: $\left(x, z, \frac{xyz}{xz+(z+1)^2}\right)$

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Table 89 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 89a
1533	$xz^2+2xz+x+\frac{xz^3}{y}+y+4z+\frac{5z^2}{y}+\frac{5}{x}+\frac{10z}{xy}+\frac{2}{x^2z}+\frac{10}{x^2y}+\frac{5}{x^3yz}+\frac{1}{x^4yz^2}$	1550: $\left(x, \frac{(y+z)^4}{x^2y^2z^3}, \frac{y}{xz}\right)$
1544	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}$	1189: $\left(\frac{xz+1}{z}, \frac{y(xz+1)}{xz}, \frac{xz^2}{xz+1}\right)$ 3561: $\left(\frac{x^3y^2z^2}{xz+(xyz+1)^2}, y, \frac{xz+(xyz+1)^2}{x^2y^2z}\right)$
1550	$x+y+\frac{2y}{z}+z+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{5}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	523: $\left(\frac{(y+z)(xyz+y+z)}{xyz}, \frac{x^2y^2z}{(y+z)(xyz+y+z)}, \frac{x^2yz^2}{(y+z)(xyz+y+z)}\right)$ 1533: $\left(x, \frac{(xz+1)^4}{x^3yz}, \frac{(xz+1)^4}{x^4yz^2}\right)$
1551	$x+yz^2+2yz+y+\frac{2}{z}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	523: $\left(x+y+z, \frac{xy}{z^2(x+y+z)}, \frac{z}{y}\right)$
1689	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	1189: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{xy^2z}, \frac{xyz+x+y}{x^2yz}\right)$ 2402: $\left(x, \frac{x^2y^3z^2}{(yz+1)(1+yz(x+1)^2)}, \frac{x^2y^2z}{(yz+1)(1+yz(x+1)^2)}\right)$ 3150: $\left(x, \frac{(x+z)^2}{x^2y}, z\right)$
2088	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1189: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, y\right)$ 1271: $\left(x, \frac{z(xy+(y+1)^2)}{xy}, y\right)$ 2420: $\left(\frac{yz+1}{y}, \frac{y^2z}{yz+1}, \frac{xyz}{yz+1}\right)$ 2552: $\left(\frac{x^2}{x+z}, \frac{x+z}{xy}, \frac{x+z}{xz}\right)$
2402	$x+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{3}{x^2y}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	1689: $\left(x, \frac{(y+z)(z+y(x+1)^2)}{x^2y}, \frac{x^2y^2}{z(y+z)(z+y(x+1)^2)}\right)$
2420	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2}{xy^2z^2}+\frac{1}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2088: $\left(\frac{z(xy+1)}{xy}, \frac{xy+1}{x}, \frac{x^2y}{xy+1}\right)$
2552	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	2088: $\left(\frac{xz+1}{z}, \frac{xz+1}{xyz}, \frac{xz+1}{xz^2}\right)$
2767	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1189: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$ 3109: $\left(\frac{yz+1}{z}, \frac{xyz}{yz+1}, \frac{yz^2}{yz+1}\right)$

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Table 89 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 89a
3109	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xy}+\frac{4}{xyz}+\frac{4}{xy^2z}+\frac{2}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{1}{x^2y}+\frac{3}{x^2y^2z}+\frac{3}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	2767: $\left(\frac{y(xz+1)}{xz}, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$
3150	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{3}{x^2y}+\frac{2z^2}{x^3y}+\frac{3z}{x^3y}+\frac{z^2}{x^4y}$	1689: $\left(x, \frac{(x+z)^2}{x^2y}, z\right)$
3561	$x+y+z+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{4}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{6}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{2}{x^4yz^3}+\frac{4}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	1544: $\left(\frac{xz+(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{xz+(xyz+1)^2}\right)$

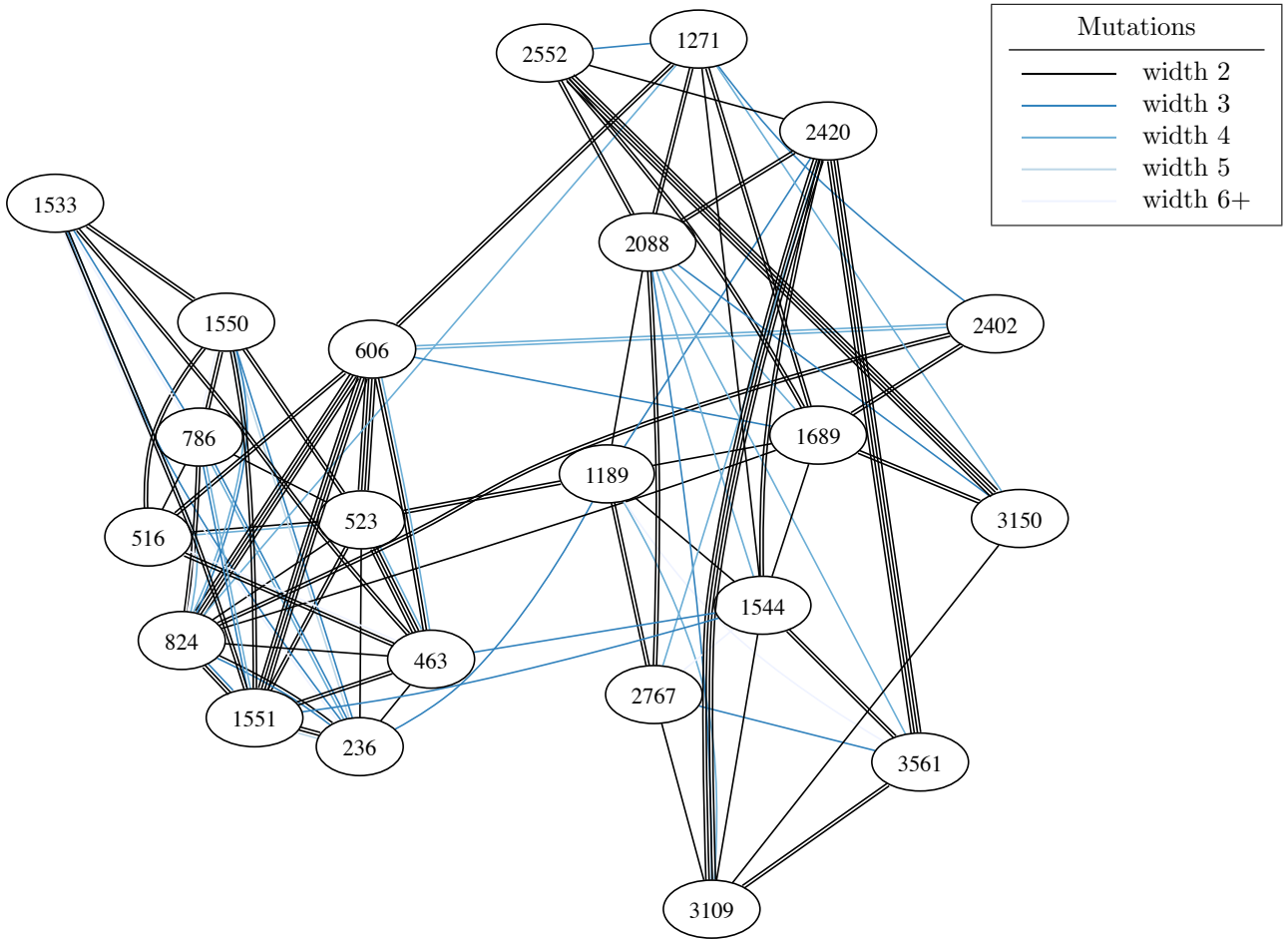

FIGURE 89B. All mutations between Minkowski polynomials in bucket 89

Bucket 90

Bucket 90 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{2}{y} + \frac{y}{x} + \frac{3}{x} + \frac{3}{xy} + \frac{1}{xy^2} + \frac{1}{xy^2z}$$

The Newton polytope of f has reflexive ID 279.

Bucket 91

Bucket 91 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{2}{y} + \frac{y^2}{xz} + \frac{y}{x} + \frac{3}{x} + \frac{3}{xy} + \frac{1}{xy^2}$$

The Newton polytope of f has reflexive ID 268.

Bucket 92

Bucket 92 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{2}{y} + \frac{y}{x} + \frac{3}{x} + \frac{3}{xy} + \frac{1}{xyz} + \frac{1}{xy^2}$$

The Newton polytope of f has reflexive ID 280.

Bucket 93

(a) A spanning tree consisting of width-2 mutations

(b) All mutations are of width 2

Figure 93. Mutations between Minkowski polynomials in bucket 93

Table 93. Laurent polynomials and selected mutations for bucket 93.

Node	Laurent polynomial	Mutations from Figure 93a
355	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	594: $\left(y, \frac{xy}{y+1}, \frac{1}{xyz}\right)$
594	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	355: $\left(\frac{y(x+1)}{x}, x, \frac{1}{yz(x+1)}\right)$

Bucket 94

Bucket 94 consists of a single Laurent polynomial:

$$f = x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{x^2y}$$

The Newton polytope of f has reflexive ID 288.

Bucket 95

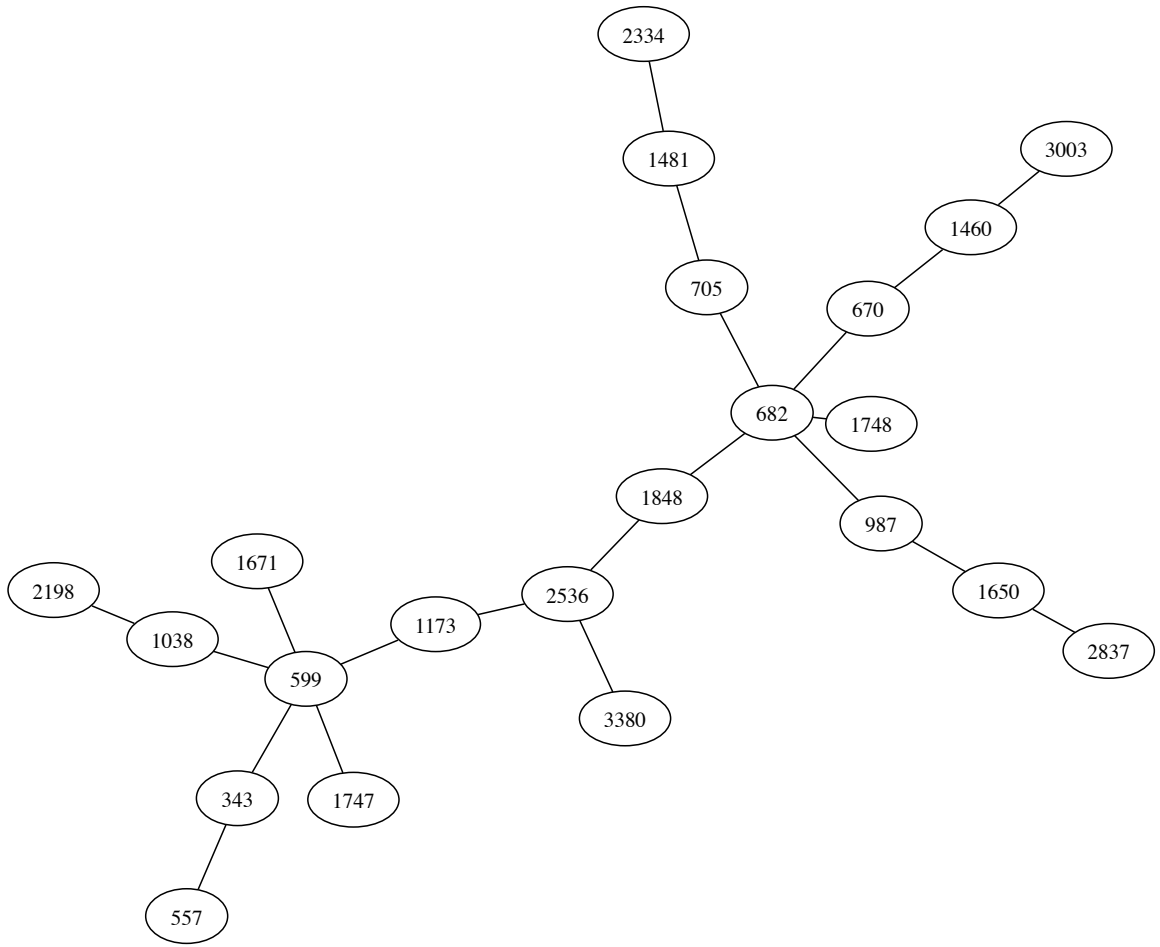

Figure 95a. Selected width-2 mutations between Minkowski polynomials in bucket 95

Table 95. Laurent polynomials and selected mutations for bucket 95.

Node	Laurent polynomial	Mutations from Figure 95a
343	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	557: $\left(\frac{xy^2z+(y+1)^2}{xy}, y, \frac{x^2y^2z}{xy^2z+(y+1)^2}\right)$ 599: $\left(y, \frac{xyz}{x+yz}, \frac{x^2}{x+yz}\right)$
557	$x+yz+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	343: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2z}{xyz+(y+1)^2}\right)$
599	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	343: $\left(\frac{y(xz+y)}{xz}, x, \frac{xz+y}{x}\right)$ 1038: $\left(\frac{(y+1)(xz+1)}{x^2z}, y, \frac{(y+1)(xz+1)}{xy}\right)$ 1173: $\left(y, \frac{xz+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$ 1671: $\left(\frac{x^2y^2z}{xy^2z+(y+1)^2}, y, \frac{xy^2z+(y+1)^2}{xy^2}\right)$ 1747: $\left(\frac{(y+1)^2(xz+1)}{x^2yz}, y, \frac{(y+1)^2(xz+1)}{xy^2}\right)$
670	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	682: $\left(\frac{x+1}{z}, x, \frac{x+1}{xy}\right)$ 1460: $\left(x, \frac{xy}{x+1}, \frac{1}{z}\right)$
682	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{x^2y}$	670: $\left(y, \frac{y+1}{yz}, \frac{y+1}{x}\right)$ 705: $\left(x, \frac{z(x+1)}{x}, \frac{x}{y}\right)$ 987: $\left(y, \frac{xyz+y+1}{xy}, \frac{xyz+y+1}{x^2z}\right)$ 1748: $\left(y, \frac{(y+1)(xyz+y+1)}{xy^2}, \frac{(y+1)(xyz+y+1)}{x^2yz}\right)$ 1848: $\left(\frac{x^2yz}{xyz+xz+y}, \frac{xyz+xz+y}{xy}, \frac{x^2z}{xyz+xz+y}\right)$
705	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	682: $\left(x, \frac{x}{z}, \frac{xy}{x+1}\right)$ 1481: $\left(\frac{xy}{y+1}, \frac{x}{y+1}, z\right)$
987	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	682: $\left(\frac{x^2y+xz+z}{xyz}, x, \frac{x^2y^2}{x^2y+xz+z}\right)$ 1650: $\left(x, \frac{1+xz(x+1)^2}{x^2yz}, z\right)$
1038	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	599: $\left(\frac{(y+1)(x+yz)}{xyz}, y, \frac{y^2z^2}{(y+1)(x+yz)}\right)$ 2198: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$

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Table 95 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 95a
1173	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	599: $\left(\frac{yz+x(yz+1)^2}{xy^2z}, x, \frac{xy^3z^2}{yz+x(yz+1)^2}\right)$ 2536: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$
1460	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2y}$	670: $\left(x, \frac{y(x+1)}{x}, \frac{1}{z}\right)$ 3003: $\left(\frac{x^2yz}{xyz+(y+1)^2}, \frac{xyz+(y+1)^2}{xy}, \frac{1}{y}\right)$
1481	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	705: $\left(x+y, \frac{x}{y}, z\right)$ 2334: $\left(x, \frac{xy}{x+1}, \frac{1}{z}\right)$
1650	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{2}{x^3yz}+\frac{1}{x^4yz^2}$	987: $\left(x, \frac{1+xz(x+1)^2}{x^2yz}, z\right)$ 2837: $\left(x, \frac{x^2y^2z}{x^2yz+1}, \frac{x^2yz+1}{x^2y}\right)$
1671	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	599: $\left(\frac{xy^2z+(y+1)^2}{y^2z}, y, \frac{xy^2z^2}{xy^2z+(y+1)^2}\right)$
1747	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	599: $\left(x+z, y, \frac{yz}{x(x+z)}\right)$
1748	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	682: $\left(\frac{(x+1)(x^2y+xz+z)}{x^2yz}, x, \frac{x^3y^2}{(x+1)(x^2y+xz+z)}\right)$
1848	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	682: $\left(\frac{xy+yz+1}{y}, \frac{x}{z}, \frac{xy^2}{xy+yz+1}\right)$ 2536: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, z\right)$
2198	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	1038: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
2334	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1481: $\left(x, \frac{y(x+1)}{x}, \frac{1}{z}\right)$
2536	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3y}{x^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{3y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	1173: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xyz}{xy+1}\right)$ 1848: $\left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, z\right)$ 3380: $\left(\frac{(xy+1)(x^3yz^2+(xz+1)^3)}{x^4yz^2}, \frac{(xy+1)(x^3yz^2+(xz+1)^3)}{x^5y^2z^2}, \frac{x^5yz^3}{(xy+1)(x^3yz^2+(xz+1)^3)}\right)$
2837	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{2}{x^3yz}+\frac{3}{x^3y^2z}+\frac{1}{x^4y^2z}$	1650: $\left(x, \frac{x^2yz+1}{x^2z}, \frac{x^2yz^2}{x^2yz+1}\right)$

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Table 95 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 95a
3003	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	1460: $\left(\frac{xyz+(z+1)^2}{yz}, \frac{1}{z}, \frac{xy^2z}{xyz+(z+1)^2}\right)$
3380	$x+y+z+\frac{z}{y}+\frac{5}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{3}{x^2z}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{3}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{3}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	2536: $\left(\frac{(x+y)(x^3z^2+y(xz+1)^3)}{x^4yz^2}, \frac{x^5z^2}{(x+y)(x^3z^2+y(xz+1)^3)}, \frac{x^5yz^3}{(x+y)(x^3z^2+y(xz+1)^3)}\right)$

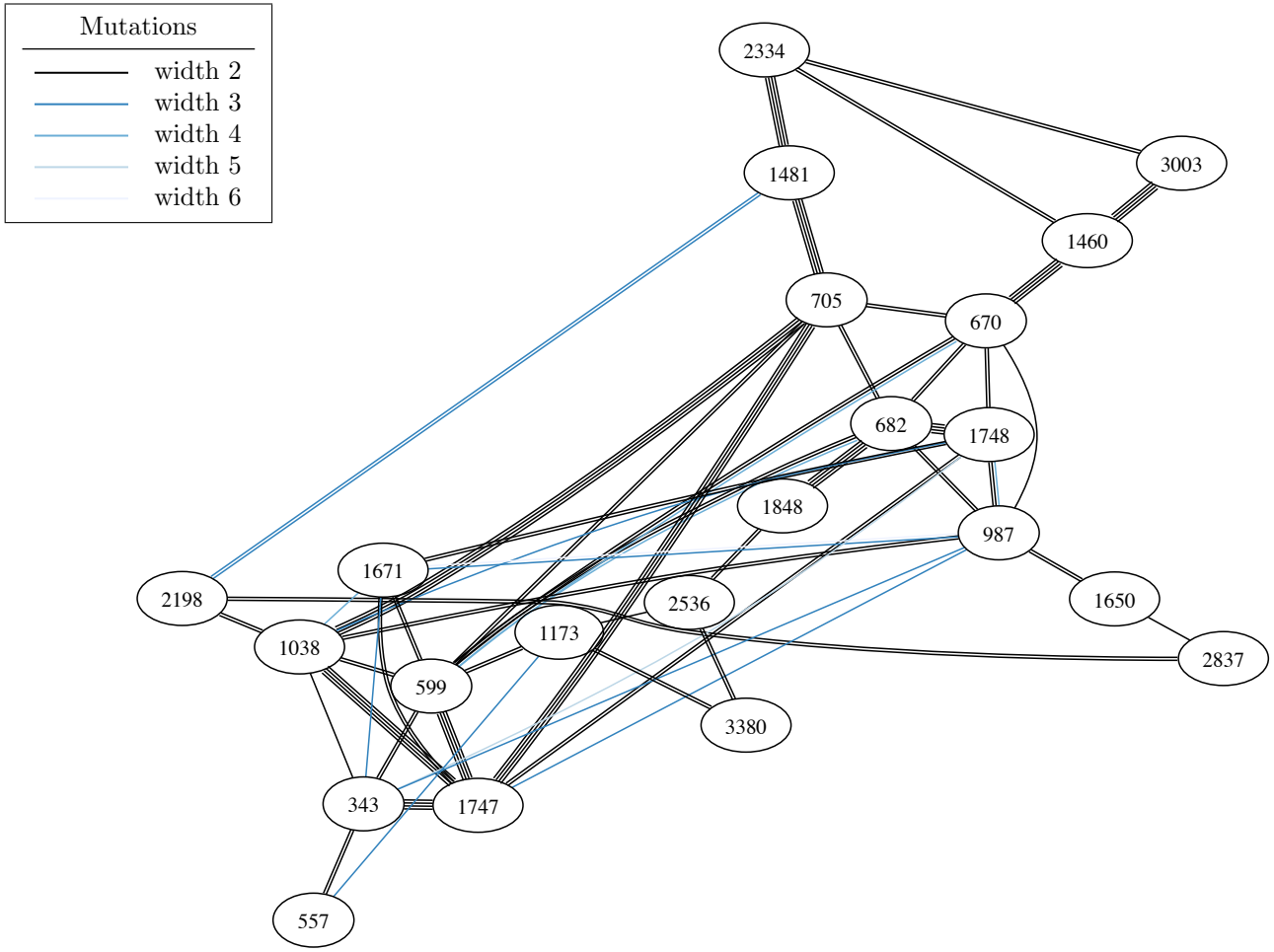


FIGURE 95B. All mutations between Minkowski polynomials in bucket 95

Bucket 96

Bucket 96 consists of a single Laurent polynomial:

$$f = x + y + z + \frac{2}{y} + \frac{y}{x} + \frac{3}{x} + \frac{1}{xz} + \frac{3}{xy} + \frac{1}{xy^2}$$

The Newton polytope of f has reflexive ID 281.

Bucket 97

(A) A spanning tree consisting of width-2 mutations

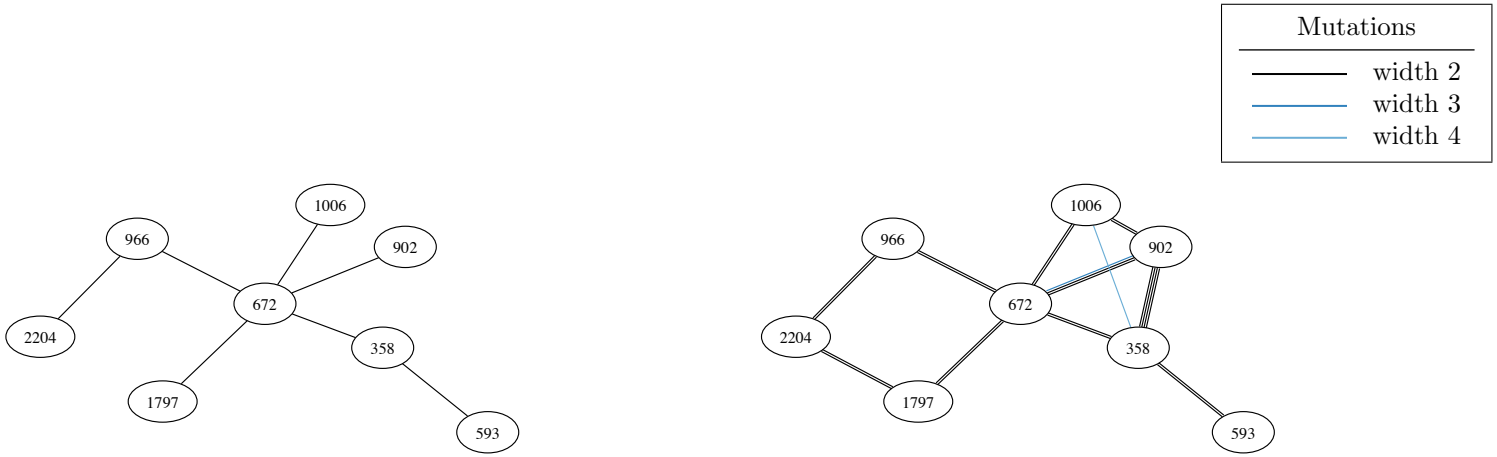
(B) All mutations are of width 2

Figure 97. Mutations between Minkowski polynomials in bucket 97

Table 97. Laurent polynomials and selected mutations for bucket 97.

Node	Laurent polynomial	Mutations from Figure 97a
282	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	$1256\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$
356	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$595\colon \left(y, \frac{xyz+(y+1)^2}{xy}, \frac{1}{xz}\right)$ $1351\colon \left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
595	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	$356\colon \left(\frac{x+z(x+1)^2}{xyz}, x, \frac{xy}{x+z(x+1)^2}\right)$
1256	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	$282\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$ $1351\colon \left(x, y, \frac{(y+1)^2}{x^2y^2z}\right)$
1351	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	$356\colon \left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ $1256\colon \left(x, y, \frac{(y+1)^2}{x^2y^2z}\right)$

Bucket 98



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 98. Mutations between Minkowski polynomials in bucket 98

Table 98. Laurent polynomials and selected mutations for bucket 98.

Node	Laurent polynomial	Mutations from Figure 98a
358	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	593: $\left(y, \frac{y^2+z(y+1)^2}{xyz}, z\right)$ 672: $\left(\frac{x+1}{y}, x, z\right)$
593	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	358: $\left(\frac{x^2+z(x+1)^2}{xyz}, x, z\right)$
672	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	358: $\left(y, \frac{y+1}{x}, \frac{x}{yz}\right)$ 902: $\left(y, \frac{(y+1)(yz+z+1)}{xyz}, z\right)$ 966: $\left(\frac{yz+(y+1)^2}{xy}, y, \frac{1}{yz}\right)$ 1006: $\left(y, \frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 1797: $\left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$
902	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	672: $\left(\frac{(x+1)(xz+z+1)}{xyz}, x, z\right)$
966	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	672: $\left(\frac{1+z(y+1)^2}{xyz}, y, \frac{1}{yz}\right)$ 2204: $\left(\frac{y+z(y+1)^3}{xy^2z}, y, \frac{y+z(y+1)^3}{xy^2}\right)$
1006	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	672: $\left(\frac{xyz+(x+1)^2}{xy}, x, \frac{xy^2z}{xyz+(x+1)^2}\right)$
1797	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	672: $\left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$
2204	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	966: $\left(\frac{xy+z(y+1)^3}{xy^2z}, y, \frac{z}{x}\right)$

Bucket 99

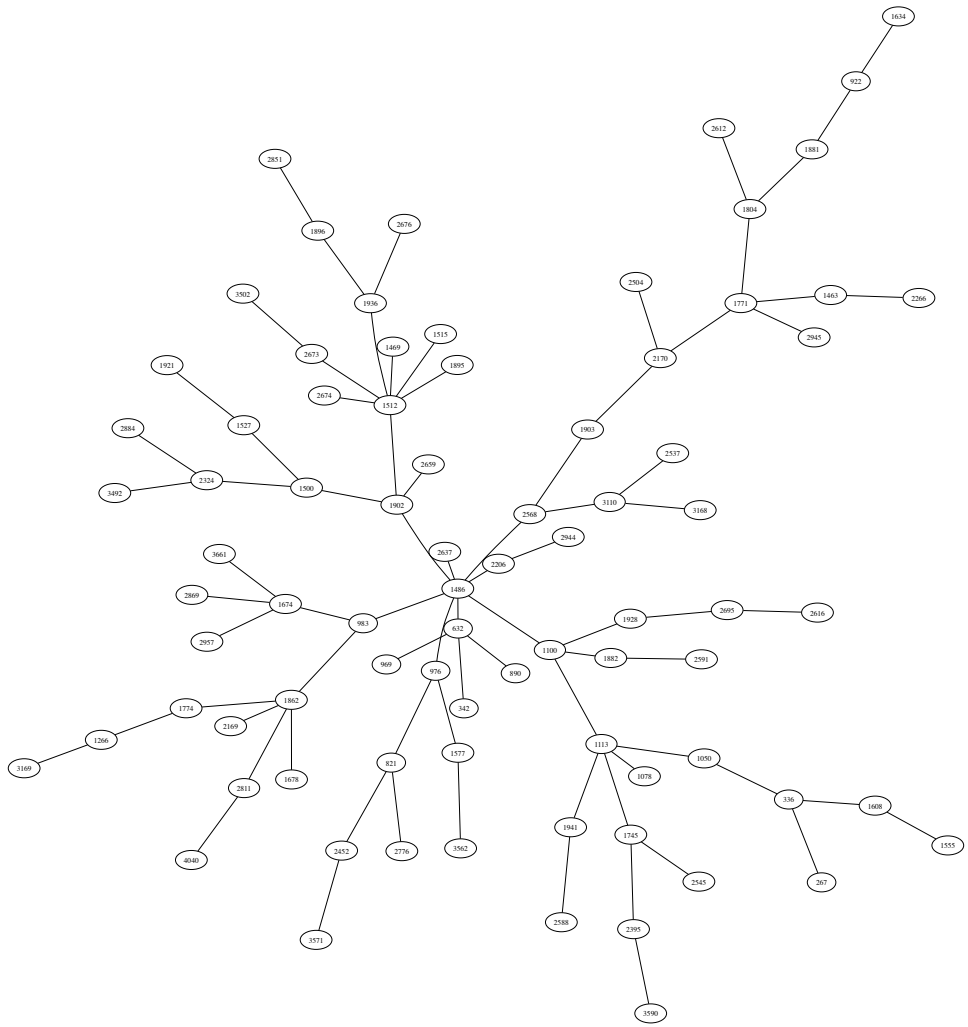


Figure 99a. Selected width-2 mutations between Minkowski polynomials in bucket 99

Table 99. Laurent polynomials and selected mutations for bucket 99.

Node	Laurent polynomial	Mutations from Figure 99a
267	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	336: $\left(\frac{x+z}{x^2}, \frac{x}{yz}, y\right)$
336	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{yz}+y+z+\frac{2z}{x}+\frac{1}{x}+\frac{z}{x^2}$	267: $\left(\frac{yz+1}{xyz}, z, \frac{yz+1}{xy^2z^2}\right)$ 1050: $\left(\frac{x}{y}, \frac{x+y}{xyz}, \frac{x^2}{x+y}\right)$ 1608: $\left(\frac{xy^2+y+z}{xy}, \frac{x^2y^2}{xy^2+y+z}, \frac{z(xy^2+y+z)}{xy^2}\right)$
342	$\frac{xy}{z}+x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	632: $\left(\frac{y+1}{x}, y, z\right)$
632	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	342: $\left(\frac{y+1}{x}, y, \frac{xy}{z}\right)$ 890: $\left(\frac{(y+1)(y^2+yz+z)}{xyz}, y, z\right)$ 969: $\left(\frac{xy^2z+(y+1)^2}{xy}, y, \frac{x^2y^2z}{xy^2z+(y+1)^2}\right)$ 1486: $\left(y, \frac{y+1}{x}, \frac{y+1}{xyz}\right)$
821	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}$	976: $\left(x, \frac{xy+xz+y}{xyz}, \frac{xy^2}{xy+xz+y}\right)$ 2452: $\left(y, x, \frac{y^2z}{(y+1)^2}\right)$ 2776: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^3yz}{x^2yz+(xz+1)^2}, \frac{x^2yz+(xz+1)^2}{x^3z^2}\right)$
890	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	632: $\left(\frac{(y+1)(y^2+yz+z)}{xyz}, y, z\right)$
922	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1634: $\left(\frac{(xyz+1)(1+xz(y+1)^2)}{x^2yz}, \frac{(xyz+1)(1+xz(y+1)^2)}{x^3y^2z^2}, y\right)$ 1881: $\left(x, \frac{xy}{x+1}, z\right)$
969	$x+yz+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	632: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2z}{xyz+(y+1)^2}\right)$
976	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	821: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xyz+x+yz}{xy^2z}\right)$ 1486: $\left(\frac{(y+1)(yz+1)}{xyz}, y, \frac{xy}{(y+1)(yz+1)}\right)$ 1577: $\left(y, \frac{(xz+1)(xyz+xz+y)}{x^2yz}, \frac{(xz+1)(xyz+xz+y)}{x^3yz^2}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
983	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{x^2z}$	1486: $\left(y, \frac{(z+1)(y+1)}{x}, \frac{(z+1)(y+1)}{xyz}\right)$ 1674: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, y, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$ 1862: $\left(y, \frac{(y+1)^2}{xy}, z\right)$
1050	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	336: $\left(\frac{z(x+1)}{x}, \frac{z(x+1)}{x^2}, \frac{x}{yz}\right)$ 1113: $\left(\frac{yz+1}{x}, \frac{yz+1}{z}, yz\right)$
1078	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1113: $\left(\frac{x+z}{yz}, x+z, \frac{x}{z}\right)$
1100	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1113: $\left(\frac{x+yz}{z}, \frac{1}{z}, \frac{yz}{x}\right)$ 1486: $\left(y, \frac{y(z+1)}{x}, \frac{xz}{z+1}\right)$ 1882: $\left(\frac{(y+1)(y+z+1)}{xy}, z, \frac{1}{y}\right)$ 1928: $\left(\frac{yz+(z+1)^2}{xz}, \frac{yz+(z+1)^2}{xyz}, z\right)$
1113	$x+\frac{x}{z}+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{z}{x}+\frac{1}{x}$	1050: $\left(\frac{z+1}{x}, \frac{yz}{z+1}, \frac{z+1}{y}\right)$ 1078: $\left(\frac{yz}{z+1}, \frac{z+1}{x}, \frac{y}{z+1}\right)$ 1100: $\left(z, \frac{1}{y}, \frac{xz}{z+1}\right)$ 1745: $\left(\frac{xz}{(z+1)(y+1)}, \frac{(z+1)(y+1)}{xy}, \frac{xyz}{(z+1)(y+1)}\right)$ 1941: $\left(y, \frac{xyz}{yz+y+1}, \frac{yz+y+1}{x}\right)$
1266	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	1774: $\left(y, \frac{xy}{y+1}, \frac{y+1}{yz}\right)$ 3169: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
1463	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	1771: $\left(\frac{x^2yz}{xyz+1}, y, \frac{xyz+1}{xy}\right)$ 2266: $\left(\frac{(xz+y+1)^2}{x^2yz}, \frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}\right)$
1469	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	1512: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy^2}{xy+1}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
1486	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	632: $\left(\frac{x+1}{y}, x, \frac{y}{xz}\right)$ 976: $\left(\frac{(y+1)(xz+y)}{xy}, y, \frac{1}{xz}\right)$ 983: $\left(\frac{(x+1)(xz+y)}{xyz}, x, \frac{y}{xz}\right)$ 1100: $\left(\frac{x+yz}{y}, x, \frac{yz}{x}\right)$ 1902: $\left(x, y, \frac{xz}{x+y+1}\right)$ 2206: $\left(\frac{xy}{y+1}, y, z\right)$ 2568: $\left(x, \frac{xy^2z}{xyz+yz+1}, \frac{xyz+yz+1}{xy}\right)$ 2637: $\left(y, \frac{1+z(y+1)^2}{xyz}, z\right)$
1500	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	1527: $\left(x, \frac{y(z+1)}{z}, z\right)$ 1902: $\left(\frac{xz+y+1}{x}, y, \frac{xz+y+1}{x^2z}\right)$ 2324: $\left(y, \frac{xy}{y+1}, z\right)$
1512	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	1469: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{xyz}{xz+1}\right)$ 1515: $\left(\frac{x+y}{xy}, \frac{x^2}{x+y}, \frac{z}{y}\right)$ 1895: $\left(\frac{xy}{y+1}, \frac{y+1}{yz}, \frac{x}{y+1}\right)$ 1902: $\left(y, \frac{xyz+y+1}{xy}, \frac{xyz+y+1}{x^2z}\right)$ 1936: $\left(\frac{x+yz+y}{xy}, \frac{x^2}{x+yz+y}, z\right)$ 2673: $\left(\frac{x^2yz}{(y+1)(xz+1)}, \frac{(y+1)(xz+1)}{xy}, \frac{x^2z}{(y+1)(xz+1)}\right)$ 2674: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{x^3z^2}{(xz+1)(xz+y+1)}, y\right)$
1515	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	1512: $\left(\frac{xy+1}{x}, \frac{xy+1}{x^2y}, \frac{z(xy+1)}{x^2y}\right)$
1527	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}$	1500: $\left(x, \frac{yz}{z+1}, z\right)$ 1921: $\left(y, \frac{xy}{(z+1)(y+1)}, \frac{xyz}{(z+1)(y+1)}\right)$
1555	$xz^2+2xz+x+y+z+\frac{z^2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^3z^2}+\frac{1}{x^3yz}$	1608: $\left(x, \frac{(y+z)^2}{x^2yz^2}, \frac{y}{xz}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
1577	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	976: $\left(\frac{(y+z)(xy+xz+y)}{xy^2z}, x, \frac{xy^3}{(y+z)(xy+xz+y)}\right)$ 3562: $\left(\frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^3}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$
1608	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{y}{xz}+\frac{1}{x}+\frac{2z}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	336: $\left(\frac{x^2y+x+z}{x^2}, \frac{x^3y}{x^2y+x+z}, \frac{x^2yz}{x^2y+x+z}\right)$ 1555: $\left(x, \frac{(xz+1)^2}{x^2y}, \frac{(xz+1)^2}{x^3yz}\right)$
1634	$x+y^2z+2yz+y+z+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	922: $\left(\frac{(x+y)(yz+x(z+1)^2)}{x^2yz}, z, \frac{x^3}{(x+y)(yz+x(z+1)^2)}\right)$
1674	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	983: $\left(\frac{xz+y(xz+1)^2}{x^2yz}, y, \frac{x^3yz^2}{xz+y(xz+1)^2}\right)$ 2869: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^3yz}{x^2yz+(x+y)^2}, \frac{x^3}{x^2yz+(x+y)^2}\right)$ 2957: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{xy}\right)$ 3661: $\left(\frac{x^3y^2}{(xy+1)^2}, \frac{(xy+1)^2}{x^2y}, \frac{z(xy+1)^2}{x^2y}\right)$
1678	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1862: $\left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$
1745	$x+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1113: $\left(\frac{(yz+1)(x+z)}{yz}, \frac{z}{x}, yz\right)$ 2395: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ 2545: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1771	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3yz^2}$	1463: $\left(\frac{xyz+1}{xz}, x, \frac{xyz^2}{xyz+1}\right)$ 1804: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$ 2170: $\left(y, \frac{x^2yz}{xyz+1}, \frac{xyz+1}{xy}\right)$ 2945: $\left(\frac{(xyz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+1)(xyz+(xz+1)^2)}\right)$
1774	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1266: $\left(\frac{y(x+1)}{x}, x, \frac{x+1}{xz}\right)$ 1862: $\left(\frac{yz+1}{y}, x, \frac{yz+1}{y^2z}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
1804	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1771: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$ 1881: $\left(x, y, \frac{z(x+1)}{x}\right)$ 2612: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
1862	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	983: $\left(\frac{(x+1)^2}{xy}, x, z\right)$ 1678: $\left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$ 1774: $\left(y, \frac{x+z}{xz}, \frac{x^2}{x+z}\right)$ 2169: $\left(y, \frac{xy}{y+1}, \frac{y+1}{yz}\right)$ 2811: $\left(y, \frac{(xz+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+1)(xyz+y+1)}\right)$
1881	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	922: $\left(x, \frac{y(x+1)}{x}, z\right)$ 1804: $\left(x, y, \frac{xz}{x+1}\right)$
1882	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1100: $\left(\frac{x(y+1)}{y}, \frac{1}{z}, y\right)$ 2591: $\left(x, z, \frac{xyz}{xz+z+1}\right)$
1895	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1512: $\left(x+z, \frac{x}{z}, \frac{x+z}{xy}\right)$
1896	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1936: $\left(x, \frac{x}{z(x+1)}, \frac{1}{y}\right)$ 2851: $\left(\frac{(xyz+y+1)(xyz+xz+1)}{x^2yz}, \frac{(xyz+y+1)(xyz+xz+1)}{x^3yz^2}, \frac{x^3y^2z^2}{(xyz+y+1)(xyz+xz+1)}\right)$
1902	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1486: $\left(x, y, \frac{z(x+y+1)}{x}\right)$ 1500: $\left(\frac{x+yz+z}{xz}, y, \frac{x^2}{x+yz+z}\right)$ 1512: $\left(\frac{x^2y+xz+z}{xyz}, x, \frac{x^2y^2}{x^2y+xz+z}\right)$ 2659: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}\right)$
1903	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2170: $\left(x, y, \frac{yz}{x+y+1}\right)$ 2568: $\left(x, \frac{(x+yz+1)(xyz+yz+1)}{xy^2z}, \frac{yz}{x}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
1921	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1527: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{z}{y}\right)$
1928	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1100: $\left(\frac{xz+y(z+1)^2}{xyz}, \frac{x}{y}, z\right)$ 2695: $\left(x, \frac{xy}{x+1}, \frac{1}{z}\right)$
1936	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1512: $\left(\frac{xy+z+1}{x}, \frac{xy+z+1}{x^2y}, z\right)$ 1896: $\left(x, \frac{1}{z}, \frac{x}{y(x+1)}\right)$ 2676: $\left(x, z, \frac{x^2y}{(x+1)(x+z)}\right)$
1941	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1113: $\left(\frac{x+yz+1}{z}, x, \frac{yz}{x}\right)$ 2588: $\left(x, \frac{xyz}{(z+1)(x+1)}, \frac{(z+1)(x+1)}{xy}\right)$
2169	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	1862: $\left(\frac{y(x+1)}{x}, x, \frac{x+1}{xz}\right)$
2170	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1771: $\left(\frac{xyz+1}{xz}, x, \frac{xyz^2}{xyz+1}\right)$ 1903: $\left(x, y, \frac{z(x+y+1)}{y}\right)$ 2504: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
2206	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1486: $\left(\frac{x(y+1)}{y}, y, z\right)$ 2944: $\left(x, y, \frac{(y+1)^2}{xy^2z}\right)$
2266	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1463: $\left(\frac{(xyz+x+y)^2}{x^2y^2z}, \frac{y}{x}, \frac{x^2y^3z^2}{(xyz+x+y)^2}\right)$
2324	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1500: $\left(\frac{y(x+1)}{x}, x, z\right)$ 2884: $\left(x, y, \frac{xy^2}{z(y+1)(xy+y+1)}\right)$ 3492: $\left(\frac{x^3yz^2}{(xz+1)(xyz+y+1)}, \frac{(xz+1)(xyz+y+1)}{x^2yz}, \frac{1}{y}\right)$
2395	$x+y+z+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	1745: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ 3590: $\left(\frac{(xyz+(y+1)^2)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+(y+1)^2)^2}, y\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
2452	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	821: $\left(y, x, \frac{z(x+1)^2}{x^2}\right)$ 3571: $\left(\frac{x^2y^2z}{xy^2z+(y+1)^2}, y, \frac{xy^2z+(y+1)^2}{xy^2}\right)$
2504	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	2170: $\left(\frac{xyz+(x+1)^2}{xy}, x, \frac{xy^2z}{xyz+(x+1)^2}\right)$
2537	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{2}{x^3yz}+\frac{1}{x^3yz^2}+\frac{1}{x^4yz^2}$	3110: $\left(x, \frac{x^2y^2z}{x^2yz+x+1}, \frac{x^2yz+x+1}{x^2y}\right)$
2545	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	1745: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
2568	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	1486: $\left(x, \frac{xyz+yz+1}{xz}, \frac{x}{y(xyz+yz+1)}\right)$ 1903: $\left(x, \frac{(xz+x+1)(x^2z+xz+1)}{x^2yz}, \frac{x^3yz^2}{(xz+x+1)(x^2z+xz+1)}\right)$ 3110: $\left(x, y, \frac{x^2z}{xy+(x+1)^2}\right)$
2588	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1941: $\left(x, \frac{(yz+1)(x+1)}{xz}, yz\right)$
2591	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	1882: $\left(x, \frac{z(xy+y+1)}{xy}, y\right)$
2612	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	1804: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
2616	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{y}{x^2}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z}$	2695: $\left(x, \frac{x}{z(x+1)}, y\right)$
2637	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	1486: $\left(\frac{1+z(x+1)^2}{xyz}, x, z\right)$
2659	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	1902: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}\right)$
2673	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1512: $\left(\frac{(x+z)(xy+1)}{xy}, \frac{x}{z}, \frac{x^2y^2}{(x+z)(xy+1)}\right)$ 3502: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$
2674	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1512: $\left(\frac{(xy+1)(xy+z+1)}{x^2y}, z, \frac{x^3y^2}{(xy+1)(xy+z+1)}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
2676	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	1936: $\left(x, \frac{z(x+1)(x+y)}{x^2}, y\right)$
2695	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1928: $\left(x, \frac{y(x+1)}{x}, \frac{1}{z}\right)$ 2616: $\left(x, z, \frac{x}{y(x+1)}\right)$
2776	$x+y+z+\frac{2z}{y}+\frac{y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	821: $\left(\frac{x^2yz+(x+z)^2}{x^2z}, \frac{x^3yz}{x^2yz+(x+z)^2}, \frac{x^3}{x^2yz+(x+z)^2}\right)$
2811	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1862: $\left(\frac{(yz+1)(xyz+x+1)}{xy^2z}, x, \frac{xy^3z^2}{(yz+1)(xyz+x+1)}\right)$ 4040: $\left(\frac{x^5y^2z^2}{(x^2yz+xz+1)^2}, \frac{(x^2yz+xz+1)^2}{x^4yz^2}, \frac{(x^2yz+xz+1)^2}{x^4y^2z}\right)$
2851	$x+yz+y+z+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1896: $\left(\frac{(xz+yz+1)(xyz+x+y)}{x^2yz}, yz, \frac{x^3z}{(xz+yz+1)(xyz+x+y)}\right)$
2869	$x+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{1}{x^2yz^2}+\frac{2y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	1674: $\left(\frac{x^2yz+(xz+1)^2}{x^2z}, \frac{x^2yz+(xz+1)^2}{x^3z^2}, \frac{x^3yz}{x^2yz+(xz+1)^2}\right)$
2884	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2z}{x}+\frac{2}{x}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	2324: $\left(x, y, \frac{xy^2}{z(y+1)(xy+y+1)}\right)$
2944	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	2206: $\left(x, y, \frac{(y+1)^2}{xy^2z}\right)$
2945	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2z}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1771: $\left(\frac{(xyz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+1)(xyz+(xz+1)^2)}\right)$
2957	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{3y}{x^2}+\frac{4y}{x^2z}+\frac{3y^2}{x^3z}+\frac{y^2}{x^3z^2}+\frac{y^3}{x^4z^2}$	1674: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z}{y}\right)$
3110	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{y^2z}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{4}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^3yz}+\frac{4}{x^3y^2z}+\frac{1}{x^4y^2z}$	2537: $\left(x, \frac{x^2yz+x+1}{x^2z}, \frac{x^2yz^2}{x^2yz+x+1}\right)$ 2568: $\left(x, y, \frac{z(xy+(x+1)^2)}{x^2}\right)$ 3168: $\left(y, \frac{xy+z(y+1)^3}{xy^2z}, \frac{x^2y}{xy+z(y+1)^3}\right)$

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Table 99 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 99a
3168	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	3110: $\left(\frac{x^2yz+(x+1)^3}{x^2y}, x, \frac{x^2yz+(x+1)^3}{x^3y^2z}\right)$
3169	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1266: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
3492	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2324: $\left(\frac{(xy+1)(xy+z+1)}{xy^2}, \frac{1}{z}, \frac{x^2y^3}{(xy+1)(xy+z+1)}\right)$
3502	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{4y}{x^2}+\frac{5y}{x^2z}+\frac{4}{x^2z}+\frac{6y}{x^3z}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{4y}{x^4z^2}+\frac{y}{x^5z^3}$	2673: $\left(x, \frac{x^2z}{y(x^2z+xz+1)}, z\right)$
3562	$x+y+z+\frac{2z}{y}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{3}{x^2z}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1577: $\left(\frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^3}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$
3571	$x+y+z+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{3}{x^2z}+\frac{8}{x^2yz}+\frac{7}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2452: $\left(\frac{xy^2z+(y+1)^2}{y^2z}, y, \frac{xy^2z^2}{xy^2z+(y+1)^2}\right)$
3590	$x+y+z+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{10}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2395: $\left(\frac{(xyz+(z+1)^2)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+(z+1)^2)^2}\right)$
3661	$x+yz+y+z+\frac{2z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{7}{x^2y}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{3}{x^3y^2}+\frac{7}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{3}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	1674: $\left(\frac{(xy+1)^2}{xy^2}, \frac{x^2y^3}{(xy+1)^2}, \frac{z}{y}\right)$
4040	$x+y+z+\frac{z}{y}+\frac{5}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{5}{x^2z}+\frac{9}{x^2y}+\frac{5}{x^2yz}+\frac{z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{14}{x^3yz}+\frac{2}{x^3yz^2}+\frac{5}{x^3y^2}+\frac{9}{x^4yz^2}+\frac{10}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{10}{x^5y^2z^2}+\frac{5}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	2811: $\left(\frac{(x^2yz+xz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{(x^2yz+xz+1)^2}, \frac{x^4y^2z^3}{(x^2yz+xz+1)^2}\right)$

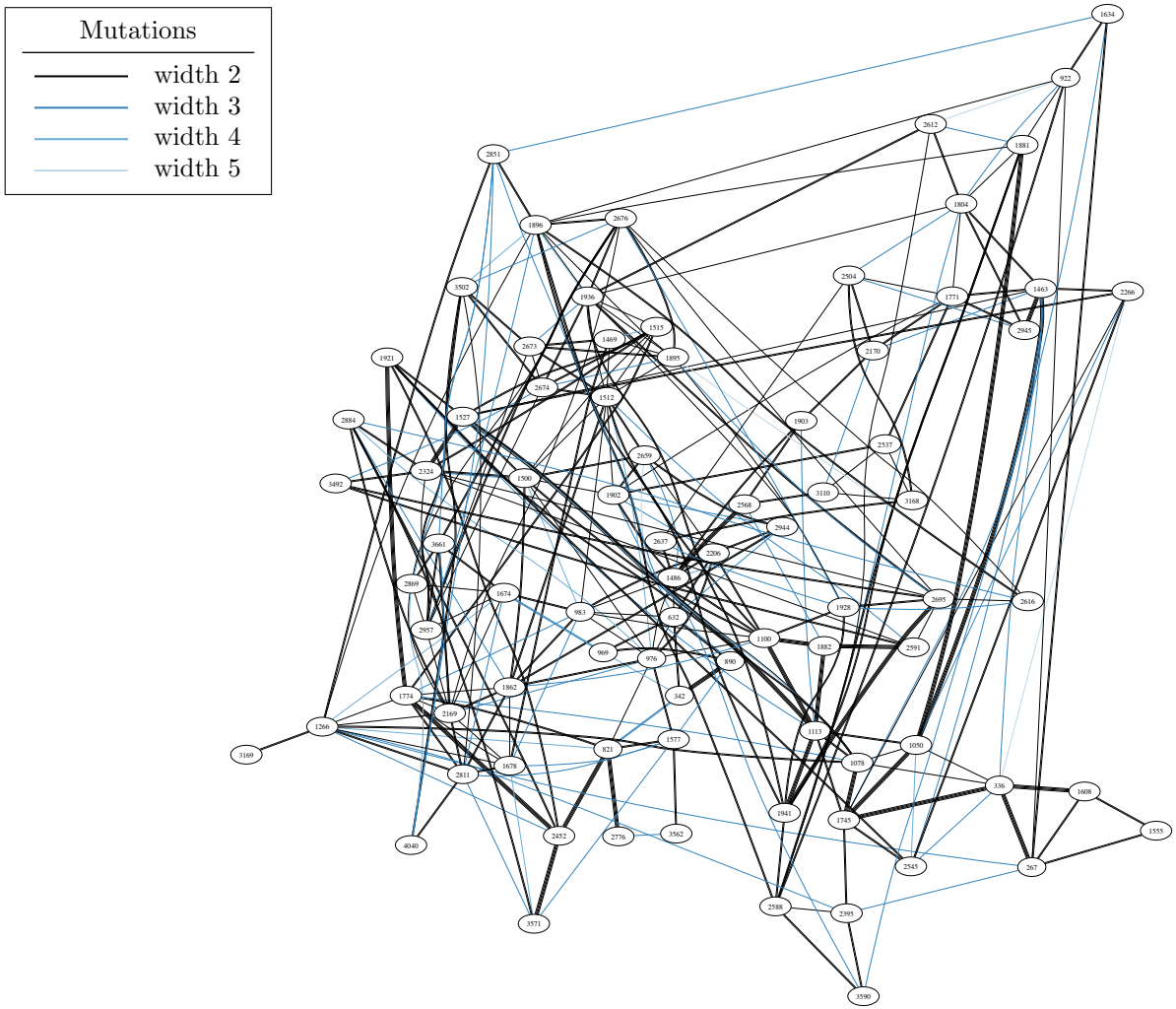

FIGURE 99B. All mutations between Minkowski polynomials in bucket 99

Bucket 100

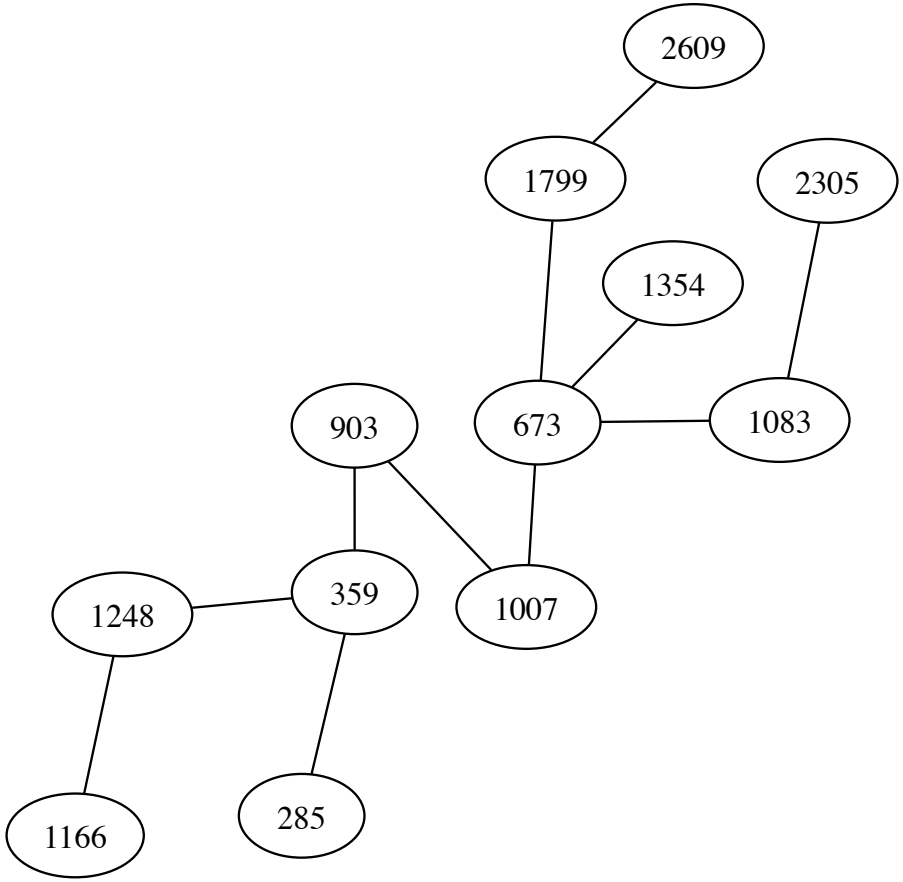

Figure 100a. Selected width-2 mutations between Minkowski polynomials in bucket 100

Table 100. Laurent polynomials and selected mutations for bucket 100.

Node	Laurent polynomial	Mutations from Figure 100a
285	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	359: $\left(\frac{(x+1)^2}{xy}, x, z\right)$
359	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	285: $\left(y, \frac{(y+1)^2}{xy}, z\right)$ 903: $\left(\frac{xyz}{yz+y+z}, y, \frac{xy}{yz+y+z}\right)$ 1248: $\left(y, \frac{x^2yz}{xyz+xz+y^2}, \frac{xyz+xz+y^2}{xy}\right)$
673	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1007: $\left(y, \frac{y^2+z(y+1)^2}{xyz}, \frac{xy^2}{y^2+z(y+1)^2}\right)$ 1083: $\left(\frac{y+1}{x}, y, z\right)$ 1354: $\left(\frac{(y+1)^2}{xy}, y, z\right)$ 1799: $\left(\frac{yz+(y+1)^2}{xy}, y, \frac{yz+(y+1)^2}{xy^2z}\right)$
903	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	359: $\left(\frac{xy+x+yz}{y}, y, \frac{x}{z}\right)$ 1007: $\left(x, y, \frac{z(y+1)}{y}\right)$
1007	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	673: $\left(\frac{xyz+(x+1)^2}{xy}, x, \frac{x}{yz}\right)$ 903: $\left(x, y, \frac{yz}{y+1}\right)$
1083	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	673: $\left(\frac{y+1}{x}, y, z\right)$ 2305: $\left(\frac{xy}{y+z+1}, y, \frac{y+z+1}{xyz}\right)$
1166	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1248: $\left(x, y, \frac{(y+1)^2}{x^2z}\right)$
1248	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	359: $\left(\frac{x^2+xyz+yz}{xz}, x, \frac{xyz^2}{x^2+xyz+yz}\right)$ 1166: $\left(x, y, \frac{(y+1)^2}{x^2z}\right)$
1354	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	673: $\left(\frac{(y+1)^2}{xy}, y, z\right)$
1799	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	673: $\left(\frac{x+z(y+1)^2}{xyz}, y, \frac{x}{yz}\right)$ 2609: $\left(x, y, \frac{z(y+1)^2}{y^2}\right)$

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Table 100 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 100a
2305	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1083: $\left(\frac{xyz+xz+1}{yz}, y, \frac{1}{xz}\right)$
2609	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	1799: $\left(x, y, \frac{y^2z}{(y+1)^2}\right)$

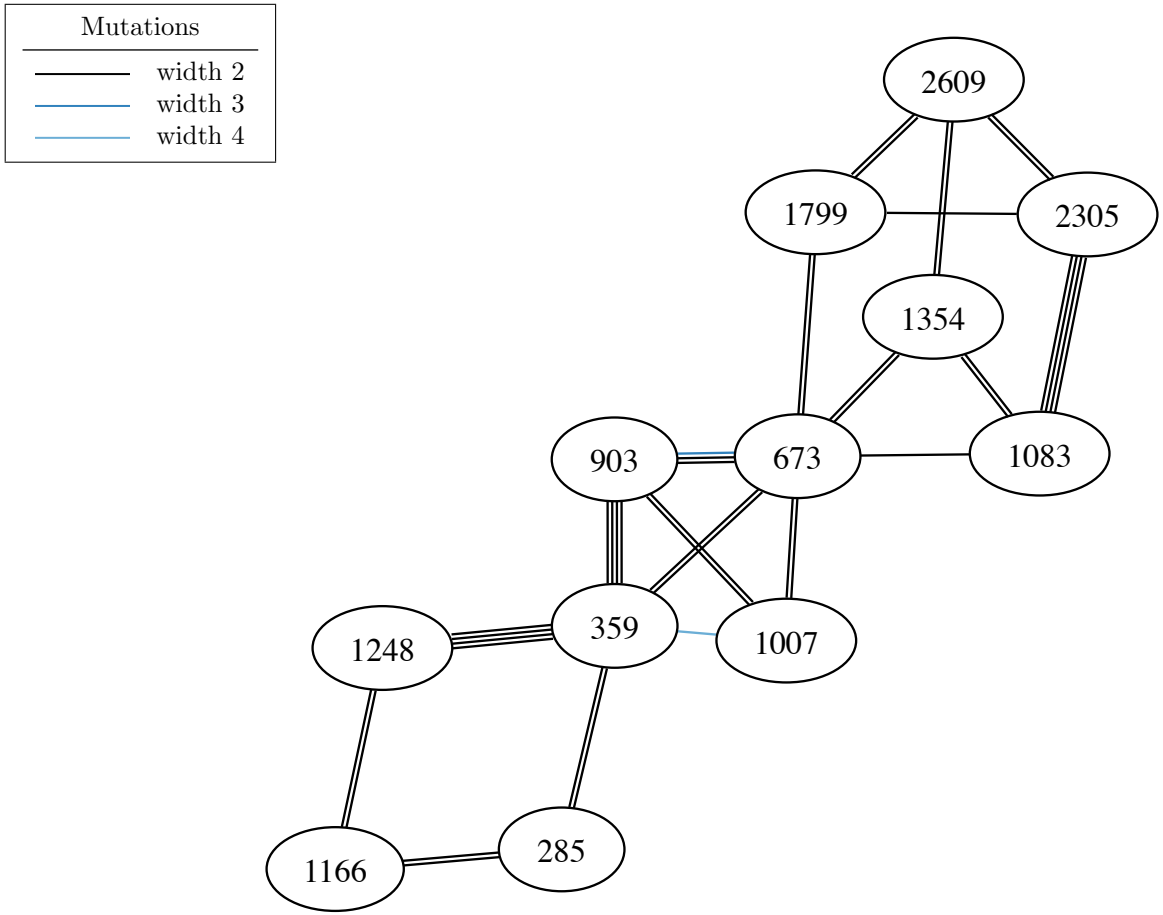

Figure 100b. All mutations between Minkowski polynomials in bucket 100

Bucket 101

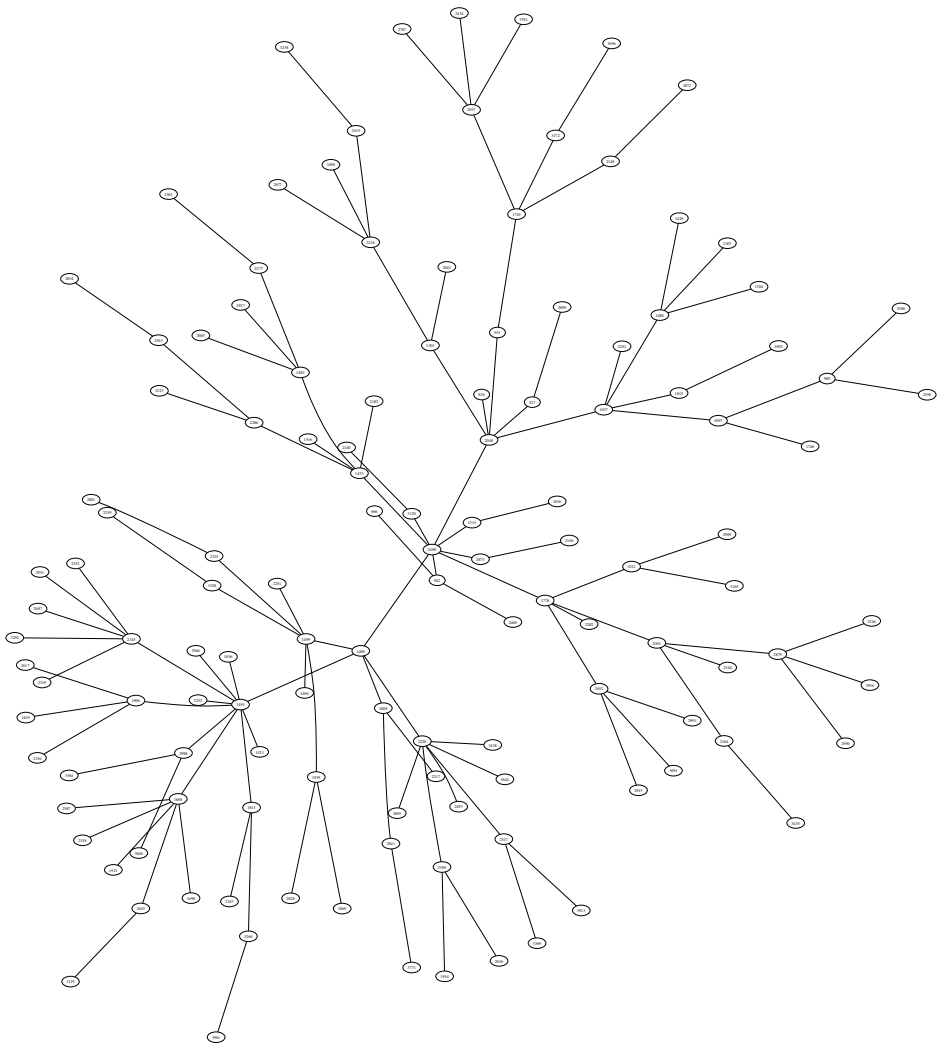

Figure 101a. Selected width-2 mutations between Minkowski polynomials in bucket 101

Table 101. Laurent polynomials and selected mutations for bucket 101.

Node	Laurent polynomial	Mutations from Figure 101a
527	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{1}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	2048: $\left(\frac{x^3z^2}{(xz+y)^2}, y, \frac{(xz+y)^2}{x^2y^2z}\right)$ 2099: $\left(\frac{x}{xy^2z+1}, \frac{xy^2z+1}{xy}, \frac{x^2y^2z}{xy^2z+1}\right)$
666	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{yz}+y+z+\frac{2z}{x}+\frac{1}{x}+\frac{z}{x^2}$	942: $\left(\frac{xyz}{y^2z+yz+1}, z, \frac{x}{y^2z+yz+1}\right)$
836	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	2048: $\left(\frac{(xz+y)^2(xyz+xz+y)}{x^3yz^2}, \frac{(xz+y)^2(xyz+xz+y)}{x^3y^2z^2}, \frac{x^4yz^3}{(xz+y)^2(xyz+xz+y)}\right)$
931	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	1710: $\left(y, z, \frac{xyz^2}{z+y(z+1)^2}\right)$ 2048: $\left(\frac{x^2yz}{xyz+xz+y}, \frac{x^2z}{xyz+xz+y}, \frac{xy}{xyz+xz+y}\right)$
942	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	666: $\left(\frac{x^2+xyz+yz^2}{yz}, \frac{x}{yz}, y\right)$ 2460: $\left(\frac{z^2+y(y+z)^2}{xyz^2}, \frac{z^2+y(y+z)^2}{xyz}, \frac{xz^2}{z^2+y(y+z)^2}\right)$ 2490: $\left(\frac{xy^2}{(y+z)^2}, y, \frac{(y+z)^2}{xy^2z}\right)$
989	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1097: $\left(\frac{xy+yz+z}{xyz}, \frac{xy+yz+z}{xz}, \frac{x}{z}\right)$ 2506: $\left(y, \frac{x^2yz}{xyz+xz+1}, \frac{xyz+xz+1}{xy}\right)$ 2558: $\left(\frac{xy^2z}{y^2z+yz+1}, y, z\right)$
1037	$x+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	1097: $\left(x, \frac{xy}{x+1}, \frac{z}{y}\right)$ 1488: $\left(y, \frac{xyz}{yz+y+z}, \frac{1}{z}\right)$ 1815: $\left(y, \frac{xy^2z}{y+z(y+1)^2}, \frac{y+z(y+1)^2}{xy}\right)$ 2048: $\left(\frac{x^2yz}{(y+1)(xz+y)}, \frac{xy^2}{(y+1)(xz+y)}, \frac{(y+1)(xz+y)}{xy}\right)$ 2281: $\left(y, \frac{y+z}{xz}, z\right)$
1097	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	989: $\left(\frac{x+yz+y}{xy}, \frac{y}{x}, \frac{x+yz+y}{xyz}\right)$ 1037: $\left(x, \frac{y(x+1)}{x}, \frac{yz(x+1)}{x}\right)$ 1746: $\left(\frac{(y+1)(y+z+1)}{xy}, \frac{1}{y}, \frac{(y+1)(y+z+1)}{xyz}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
1301	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2048: $\left(\frac{(y+1)(xz+y)(xyz+xz+y)}{x^2y^2z}, \frac{(y+1)(xz+y)(xyz+xz+y)}{x^3yz^2}, y\right)$ 2216: $\left(x, \frac{yz+1}{z}, yz\right)$ 2843: $\left(x, \frac{(z+1)^2}{yz}, z\right)$
1303	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	2277: $\left(y, x, \frac{xyz}{xy+1}\right)$
1304	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{3}{xy}+\frac{z}{x^2}+\frac{1}{x^2y}$	1488: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
1315	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2z}$	1836: $\left(x, y+z, \frac{z(y+z)}{xy}\right)$ 2490: $\left(\frac{(y+z)^2(y+z+1)}{xy^2z}, \frac{(y+z)^2(y+z+1)}{xyz}, z\right)$
1406	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}$	1455: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 1499: $\left(x, y, \frac{yz}{y+1}\right)$ 1808: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 2220: $\left(z, x, \frac{x+z}{yz}\right)$ 2490: $\left(\frac{x}{y+z+1}, \frac{xy}{y+z+1}, \frac{xz}{y+z+1}\right)$
1426	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{z}{x^2}$	1488: $\left(x, \frac{x+1}{y}, \frac{x}{z(x+1)}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
1455	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z}$	1406: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 1523: $\left(\frac{xy+x+yz}{xyz}, \frac{xy+x+yz}{x^2}, y\right)$ 1813: $\left(\frac{xy+x+z}{xz}, y, \frac{x^2y}{xy+x+z}\right)$ 1856: $\left(x, \frac{xy}{x+1}, z\right)$ 1868: $\left(x, \frac{xyz}{xz+1}, z\right)$ 1906: $\left(\frac{xz+y}{x}, y, \frac{x^2z}{xz+y}\right)$ 2252: $\left(\frac{(y+z+1)^2}{xyz}, \frac{(y+z+1)^2}{xy}, y\right)$ 2345: $\left(x, \frac{y+1}{z}, y\right)$ 2946: $\left(\frac{x^2yz}{xyz+y+1}, y, \frac{xyz+y+1}{xy}\right)$ 2998: $\left(y, \frac{xy^2z}{(y+1)(yz+1)}, z\right)$
1473	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}$	1483: $\left(z, y, \frac{xz}{y+z+1}\right)$ 1516: $\left(\frac{x}{yz}, x, \frac{x}{z(x+1)}\right)$ 2182: $\left(\frac{y+z(y+1)^2}{xy}, y, z\right)$ 2286: $\left(y, z, \frac{xyz}{(z+1)(y+z+1)}\right)$ 2490: $\left(\frac{xy^2}{(y+1)(y+z)}, \frac{xy}{(y+1)(y+z)}, \frac{xyz}{(y+1)(y+z)}\right)$
1483	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1473: $\left(\frac{z(x+y+1)}{x}, y, x\right)$ 1927: $\left(y, \frac{yz+z+1}{xz}, \frac{1}{z}\right)$ 2277: $\left(y, z, \frac{xyz}{yz+y+1}\right)$ 2685: $\left(y, \frac{xy}{y+z}, \frac{1}{z}\right)$
1488	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1037: $\left(\frac{y(xz+x+1)}{x}, x, \frac{1}{z}\right)$ 1304: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$ 1426: $\left(x, \frac{x+1}{y}, \frac{x}{z(x+1)}\right)$ 2307: $\left(y, \frac{(y+1)^2}{xy}, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
1496	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	1499: $\left(\frac{(z+1)(x+y)}{xyz},\frac{(z+1)(x+y)}{xy},\frac{y}{xz}\right)$
1499	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1406: $\left(x,y,\frac{z(y+1)}{y}\right)$ 1496: $\left(\frac{(x+y)(x+yz)}{xy^2z},\frac{(x+y)(x+yz)}{x^2y},\frac{y}{x}\right)$ 1528: $\left(\frac{y(x+1)}{x},\frac{x+1}{z},x\right)$ 1939: $\left(x,\frac{z+1}{y},z\right)$ 2251: $\left(\frac{(z+1)(y+1)^2}{xyz},\frac{(z+1)(y+1)^2}{xy},\frac{1}{y}\right)$ 2325: $\left(y,\frac{xyz}{yz+z+1},z\right)$
1516	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	1473: $\left(y,\frac{z(y+1)}{x},\frac{y}{z(y+1)}\right)$
1521	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1868: $\left(y,\frac{yz+z+1}{xz},z\right)$
1523	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	1455: $\left(\frac{xz+x+y}{xy},z,\frac{xz+x+y}{x^2z}\right)$
1528	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	1499: $\left(z,\frac{xz}{z+1},\frac{z+1}{y}\right)$ 2339: $\left(\frac{xyz}{(z+1)(y+1)},y,z\right)$
1710	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	931: $\left(\frac{z(y+x(y+1)^2)}{xy^2},x,y\right)$ 2037: $\left(\frac{xz+1}{x},\frac{x^2z}{xz+1},\frac{xyz}{xz+1}\right)$ 2148: $\left(\frac{xyz+y+1}{xy},\frac{x^2yz}{xyz+y+1},y\right)$ 3172: $\left(\frac{x^3z^2}{(xz+1)^2},\frac{(xz+1)^2}{x^2z},y\right)$
1746	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1097: $\left(\frac{(y+1)(xy+yz+z)}{xyz},\frac{1}{y},\frac{x}{z}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
1778	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	2202: $\left(x, \frac{xy}{x+z+1}, z\right)$ 2303: $\left(x, \frac{xy}{x+1}, z\right)$ 2490: $\left(\frac{(y+1)(y+z)(y+z+1)}{xyz}, \frac{(y+1)(y+z)(y+z+1)}{xy^2}, y\right)$ 2652: $\left(x, \frac{yz+1}{z}, yz\right)$ 3212: $\left(x, \frac{x^2y}{(x+1)(x+z+1)}, z\right)$
1808	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1406: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 2217: $\left(x, y, \frac{xyz}{xy+x+1}\right)$ 2841: $\left(y, z, \frac{y+z+1}{xy}\right)$
1813	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	1455: $\left(\frac{xyz+xz+y}{xy}, y, \frac{xyz+xz+y}{x^2z}\right)$ 2247: $\left(\frac{xyz+xy+1}{x}, \frac{x^2yz}{xyz+xy+1}, z\right)$ 3260: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}, y\right)$
1815	$x+yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1037: $\left(\frac{x^2+yz(x+1)^2}{x^2z}, x, \frac{yz}{x}\right)$ 1892: $\left(x, y, \frac{z}{y+1}\right)$
1819	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	1906: $\left(x, \frac{(x+1)^2}{xy}, \frac{(x+1)^2}{x^2z}\right)$
1836	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	1315: $\left(x, \frac{y^2}{xz+y}, \frac{xyz}{xz+y}\right)$
1856	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1455: $\left(x, \frac{y(x+1)}{x}, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
1868	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	1455: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 1521: $\left(\frac{xz+z+1}{yz}, x, z\right)$ 2318: $\left(\frac{y+1}{z}, y, \frac{xy}{y+1}\right)$ 2587: $\left(\frac{x^2y}{xy+z}, y, \frac{xy+z}{xyz}\right)$ 2619: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 3490: $\left(\frac{(y+1)(xz+y+1)}{xy}, y, \frac{x^2yz}{(y+1)(xz+y+1)}\right)$
1869	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	1939: $\left(\frac{xy+z+1}{xz}, \frac{xy+z+1}{x}, \frac{x^2y}{xy+z+1}\right)$
1892	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1815: $(x, y, z(y+1))$
1906	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1455: $\left(\frac{xz+y}{x}, y, \frac{x^2z}{xz+y}\right)$ 1819: $\left(x, \frac{(x+1)^2}{xy}, \frac{(x+1)^2}{x^2z}\right)$ 2316: $\left(x, \frac{x+1}{y}, z\right)$ 2617: $\left(x, \frac{(x+1)^2}{xy}, \frac{1}{z}\right)$
1927	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1483: $\left(\frac{x+z+1}{y}, x, \frac{1}{z}\right)$
1939	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1499: $\left(x, \frac{z+1}{y}, z\right)$ 1869: $\left(\frac{xyz+x+y}{xy}, \frac{xy^2z}{xyz+x+y}, \frac{y}{x}\right)$ 2628: $\left(\frac{(y+1)(xz+y+1)}{xy}, \frac{x^2z}{(y+1)(xz+y+1)}, \frac{1}{y}\right)$
2034	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	2563: $\left(\frac{xz+1}{z}, \frac{xyz}{xz+1}, \frac{xz^2}{xz+1}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2037	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}$	1710: $\left(\frac{xy+1}{x}, \frac{z(xy+1)}{xy}, \frac{x^2y}{xy+1}\right)$ 2787: $\left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$ 3434: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$ 3781: $\left(\frac{(xz+1)^3}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^3}\right)$
2048	$x+y+z+\frac{2z}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{3}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	527: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^4z^3}{(xyz+1)^2}\right)$ 836: $\left(\frac{(yz+1)^2(xz+yz+1)}{xy^2z^2}, \frac{x}{y}, \frac{x^2y^2z^3}{(yz+1)^2(xz+yz+1)}\right)$ 931: $\left(x+y+z, \frac{x}{y}, \frac{x}{z(x+y+z)}\right)$ 1037: $\left(\frac{(yz+1)(x+y)}{yz}, yz, \frac{xyz^2}{(yz+1)(x+y)}\right)$ 1301: $\left(\frac{(z+1)(x+y)(xz+x+y)}{x^2yz}, z, \frac{x^3z^2}{(z+1)(x+y)(xz+x+y)}\right)$ 2490: $\left(x, y+z, \frac{y(y+z)}{xz}\right)$
2099	$xy^2z^2+2xyz+x+y^2z+yz+y+z+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3y^2z^2}$	527: $\left(x+z, \frac{1}{xy}, \frac{xy^2z}{x+z}\right)$
2140	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	3120: $\left(\frac{x^3y^3z^2+(xyz+1)^3}{x^3y^2z^2}, \frac{x^4y^3z^2}{x^3y^3z^2+(xyz+1)^3}, \frac{x^3y^3z^2+(xyz+1)^3}{x^3y^2z}\right)$
2146	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	2873: $\left(\frac{(xyz+xz+1)(x^2yz^2+(xyz+1)^2)}{x^3yz^2}, \frac{(xyz+xz+1)(x^2yz^2+(xyz+1)^2)}{x^4y^2z^3}, \frac{x^4yz^3}{(xyz+xz+1)(x^2yz^2+(xyz+1)^2)}\right)$
2148	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1710: $\left(\frac{xyz+z+1}{xz}, z, \frac{x^2yz}{xyz+z+1}\right)$ 2872: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
2164	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2303: $\left(x, y, \frac{z(x+y+1)}{x}\right)$ 3435: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
2182	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1473: $\left(\frac{y+z(y+1)^2}{xy}, y, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2202	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1778: $\left(x, \frac{y(x+z+1)}{x}, z\right)$
2216	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1301: $\left(x, \frac{yz}{z+1}, \frac{z+1}{y}\right)$ 2615: $\left(x, \frac{xy}{xz+x+1}, z\right)$ 2677: $\left(x, \frac{xz}{x+1}, y\right)$ 3498: $\left(x, \frac{(xz+1)^2}{x^2yz^2}, z\right)$
2217	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1808: $\left(x, y, \frac{z(xy+x+1)}{xy}\right)$
2220	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}$	1406: $\left(y, \frac{x+y}{xz}, x\right)$ 2497: $\left(\frac{xyz}{yz+1}, \frac{yz+1}{y}, \frac{x}{yz+1}\right)$ 2517: $\left(\frac{xyz}{yz+1}, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$ 2589: $\left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$ 2895: $\left(y, \frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}\right)$ 3438: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{x^3z^2}{(xz+y+1)^2}, \frac{(xz+y+1)^2}{x^2yz}\right)$ 3644: $\left(y, \frac{x^3z^2}{(xz+1)(xz+y+1)}, \frac{(xz+1)(xz+y+1)}{x^2z}\right)$
2247	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	1813: $\left(\frac{xyz+xy+z}{xz}, \frac{x^2y}{xyz+xy+z}, z\right)$
2251	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1499: $\left(\frac{(z+1)^2(x+y)}{xyz}, \frac{1}{z}, \frac{y}{x}\right)$
2252	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1455: $\left(\frac{(xz+x+y)^2}{x^2yz}, z, \frac{y}{x}\right)$
2277	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1303: $\left(y, x, \frac{z(xy+1)}{xy}\right)$ 1483: $\left(\frac{z(xy+x+1)}{xy}, x, y\right)$
2281	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1037: $\left(\frac{x+z}{yz}, x, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2286	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{1}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1473: $\left(\frac{z(y+1)(x+y+1)}{xy}, x, y\right)$ 2563: $\left(x, \frac{xyz}{xy+1}, y\right)$ 3223: $\left(x, \frac{xyz^2}{(z+1)(xz+1)}, z\right)$
2303	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1778: $\left(x, \frac{y(x+1)}{x}, z\right)$ 2164: $\left(x, y, \frac{xz}{x+y+1}\right)$ 2344: $\left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$ 2879: $\left(x, y, \frac{xyz}{(y+1)(x+y+1)}\right)$
2307	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1488: $\left(\frac{(x+1)^2}{xy}, x, z\right)$
2316	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1906: $\left(x, \frac{x+1}{y}, z\right)$
2318	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2y^2}+\frac{z}{x^2y^3}$	1868: $\left(\frac{z(y+1)}{y}, y, \frac{y+1}{x}\right)$
2319	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	2345: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
2325	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1499: $\left(\frac{y(xz+z+1)}{xz}, x, z\right)$ 2881: $\left(\frac{x^2yz}{xyz+(y+1)^2}, \frac{xyz+(y+1)^2}{xy}, \frac{1}{y}\right)$
2339	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1528: $\left(\frac{x(z+1)(y+1)}{yz}, y, z\right)$
2344	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2303: $\left(x, \frac{z+1}{yz}, \frac{z+1}{y}\right)$
2345	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	1455: $\left(x, z, \frac{z+1}{y}\right)$ 2319: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$ 2352: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$ 2687: $\left(\frac{(y+1)(xz+1)}{xy}, y, \frac{x^2yz}{(y+1)(xz+1)}\right)$ 2951: $\left(x, \frac{(xz+1)(xz+x+1)}{x^2yz}, z\right)$ 3292: $\left(\frac{x^2z}{xz+y+1}, y, \frac{xz+y+1}{x}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2352	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2345: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$
2460	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{1}{x}+\frac{z^2}{xy}+\frac{z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	942: $\left(\frac{xy^2z^3+(yz+1)^2}{xy^2z^2}, \frac{1}{xz}, \frac{y}{x}\right)$
2490	$x+y+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	942: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{1}{xz}\right)$ 1315: $\left(\frac{(xz+y)^2(xz+x+y)}{x^2y^2z}, \frac{y}{x}, z\right)$ 1406: $\left(x+y+z, \frac{y}{x}, \frac{z}{x}\right)$ 1473: $\left(\frac{(x+z)(x+y)}{x}, \frac{x}{y}, \frac{z}{y}\right)$ 1778: $\left(\frac{(z+1)(x+y)(xz+x+yz)}{x^2yz}, z, \frac{yz}{x}\right)$ 2048: $\left(x, \frac{xyz}{xz+y}, \frac{y^2}{xz+y}\right)$ 2873: $\left(x, \frac{xyz+1}{xz}, \frac{xyz+1}{x^2yz^2}\right)$ 3120: $\left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{(xyz+1)^2}{x^3y^3z^2}\right)$
2497	$x+yz+y+z+\frac{1}{y}+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{3y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y^2z}{x^2}+\frac{3y}{x^2}+\frac{3}{x^2z}+\frac{1}{x^2yz^2}$	2220: $\left(x+z, \frac{x+z}{yz}, \frac{xy}{x+z}\right)$
2506	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	989: $\left(\frac{xyz+yz+1}{xz}, x, \frac{xyz^2}{xyz+yz+1}\right)$
2517	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	2220: $\left(\frac{x(yz+1)}{yz}, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$ 3369: $\left(y, \frac{xyz+(xz+1)^2}{x^2z}, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$ 3913: $\left(y, \frac{(xz+1)(xyz+(xz+1)^2)}{x^3z^2}, \frac{x^4z^3}{(xz+1)(xyz+(xz+1)^2)}\right)$
2558	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	989: $\left(\frac{x(y^2z+yz+1)}{y^2z}, y, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2563	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2034: $\left(\frac{x^2z}{xz+1}, \frac{y(xz+1)}{xz}, \frac{xz+1}{x}\right)$ 2286: $\left(x, z, \frac{y(xz+1)}{xz}\right)$
2587	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	1868: $\left(\frac{xyz+1}{yz}, y, \frac{xyz+1}{xyz^2}\right)$
2589	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2220: $\left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$ 2856: $\left(\frac{xz+1}{x}, \frac{xyz}{xz+1}, \frac{x^2z}{xz+1}\right)$ 3194: $\left(\frac{x^3z^2}{(xz+y)^2}, \frac{(xz+y)^2}{x^2yz}, \frac{(xz+y)^2}{x^2yz^2}\right)$
2615	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2216: $\left(x, \frac{y(xz+x+1)}{x}, z\right)$ 3258: $\left(\frac{(xyz+xz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+xz+1)(xyz+(xz+1)^2)}\right)$
2617	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2z}{x}+\frac{1}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{1}{x^2y}+\frac{z}{x^3y}$	1906: $\left(x, \frac{(x+1)^2}{xy}, \frac{1}{z}\right)$
2619	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1868: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 3119: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
2628	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1939: $\left(\frac{(z+1)(xy+z+1)}{xz}, \frac{1}{z}, \frac{x^2y}{(z+1)(xy+z+1)}\right)$
2652	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y^2z}{x^2}+\frac{2y}{x^2}+\frac{1}{x^2z}$	1778: $\left(x, \frac{yz}{z+1}, \frac{z+1}{y}\right)$ 2915: $\left(x, z, \frac{x}{y(xz+x+z)}\right)$ 2993: $\left(x, z, \frac{xy}{x+z}\right)$ 3691: $\left(x, z, \frac{x^2y}{(x+z)(xz+x+z)}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2677	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z}$	2216: $\left(x, z, \frac{y(x+1)}{x}\right)$
2685	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1483: $\left(\frac{y(xz+1)}{xz}, x, \frac{1}{z}\right)$
2687	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2345: $\left(\frac{(y+1)(xz+1)}{xy}, y, \frac{x^2yz}{(y+1)(xz+1)}\right)$
2787	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^3}$	2037: $\left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$
2841	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1808: $\left(\frac{x+y+1}{xz}, x, y\right)$ 3771: $\left(\frac{x^3y^2z^2}{(xyz+y+1)^2}, \frac{(xyz+y+1)^2}{x^2y^2z}, y\right)$
2843	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	1301: $\left(x, \frac{(z+1)^2}{yz}, z\right)$
2856	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2}{xy^2z^2}+\frac{1}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2589: $\left(\frac{xz+1}{x}, \frac{y(xz+1)}{xz}, \frac{x^2z}{xz+1}\right)$
2872	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^4yz^3}$	2148: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
2873	$x+y^2z+2yz+y+z+\frac{4y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2146: $\left(\frac{(xyz+x+y)(x^2yz+(x+y)^2)}{x^3y^2z}, \frac{1}{yz}, \frac{x^4y^2z^2}{(xyz+x+y)(x^2yz+(x+y)^2)}\right)$ 2490: $\left(x, \frac{y^2}{y+z}, \frac{y+z}{xyz}\right)$
2879	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2303: $\left(x, y, \frac{z(y+1)(x+y+1)}{xy}\right)$ 2950: $\left(\frac{xyz+z+1}{yz}, z, \frac{xy^2z}{xyz+z+1}\right)$ 3246: $\left(\frac{xy+z(y+1)^2}{xyz}, y, \frac{x^2y}{xy+z(y+1)^2}\right)$ 3956: $\left(\frac{(xyz+y+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+y+1)(xyz+(y+1)^2)}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
2881	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	2325: $\left(\frac{xyz+(z+1)^2}{yz}, \frac{1}{z}, \frac{xy^2z}{xyz+(z+1)^2}\right)$
2895	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2220: $\left(\frac{x+yz+1}{z}, x, \frac{yz^2}{x+yz+1}\right)$
2915	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	2652: $\left(x, y, \frac{x}{z(xy+x+y)}\right)$
2946	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1455: $\left(\frac{xyz+y+1}{yz}, y, \frac{xyz^2}{xyz+y+1}\right)$
2950	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	2879: $\left(\frac{x^2yz}{xyz+y+1}, \frac{xyz+y+1}{xy}, y\right)$
2951	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3yz^2}$	2345: $\left(x, \frac{(xz+1)(xz+x+1)}{x^2yz}, z\right)$
2993	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{2z}{x^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	2652: $\left(x, \frac{z(x+y)}{x}, y\right)$
2998	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1455: $\left(\frac{y(x+1)(xz+1)}{x^2z}, x, z\right)$ 3304: $\left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, z\right)$ 3840: $\left(\frac{x^3y^2z^2}{(xyz+y+1)^2}, \frac{(xyz+y+1)^2}{x^2y^2z}, y\right)$
3119	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{6}{x^2yz}+\frac{1}{x^3z^2}+\frac{3}{x^3yz}+\frac{3}{x^3yz^2}+\frac{3}{x^4yz^2}+\frac{1}{x^5yz^3}$	2619: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
3120	$x+yz^2+2yz+y+z+\frac{5z}{x}+\frac{5}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{10}{x^2y}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{10}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}+\frac{5}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	2140: $\left(\frac{xy^3z^2+(yz+1)^3}{xy^2z^2}, \frac{x^2y^3z^2}{xy^3z^2+(yz+1)^3}, \frac{z}{x}\right)$ 2490: $\left(x, \frac{(y+z)^2}{xy^2z}, \frac{y^3}{(y+z)^2}\right)$
3165	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	3212: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{x^2yz}{xyz+(z+1)^2}, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
3172	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1710: $\left(\frac{(xy+1)^2}{xy^2}, z, \frac{x^2y^3}{(xy+1)^2}\right)$ 3696: $\left(\frac{x^3z}{x^2z+xyz+y^2}, \frac{x^2z+xyz+y^2}{x^2yz}, \frac{x^2z+xyz+y^2}{x^2y}\right)$
3194	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2y^2}{x^2z}+\frac{3y}{x^2}+\frac{5y}{x^2z}+\frac{y}{x^2z^2}+\frac{3y^2}{x^3z}+\frac{2y^2}{x^3z^2}+\frac{y^3}{x^4z^2}$	2589: $\left(\frac{(xy+1)^2}{xy^2}, \frac{(xy+1)^2}{x^2y^2z}, \frac{y}{z}\right)$
3212	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	1778: $\left(x, \frac{y(x+1)(x+z+1)}{x^2}, z\right)$ 3165: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{x^2yz}{xyz+(z+1)^2}, z\right)$ 3909: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}, z\right)$
3223	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	2286: $\left(x, \frac{y(z+1)(xz+1)}{xz^2}, z\right)$
3246	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{4z}{xy}+\frac{2}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	2879: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{xyz+(y+1)^2}{x^2yz}\right)$
3258	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^3}$	2615: $\left(\frac{(xyz+xz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+xz+1)(xyz+(xz+1)^2)}\right)$
3260	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{1}{x^2yz}+\frac{3y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{y}{x^4z^3}$	1813: $\left(\frac{(xy+z)(xyz+xy+z)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z)(xyz+xy+z)}\right)$ 3961: $\left(x, \frac{y(x^2z+(xz+1)^2)}{x^2z}, z\right)$
3292	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{3}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	2345: $\left(\frac{xz+y+1}{z}, y, \frac{xz^2}{xz+y+1}\right)$
3304	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2998: $\left(\frac{xyz+z+1}{yz}, \frac{xy^2z}{xyz+z+1}, z\right)$
3369	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2517: $\left(\frac{xyz+(yz+1)^2}{y^2z}, x, \frac{y^3z^2}{xyz+(yz+1)^2}\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
3434	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{1}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{2}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2037: $\left(\frac{(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{(xz+1)^2}\right)$
3435	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2164: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
3438	$x+y+z+\frac{z}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3y^2}{x^2z}+\frac{7y}{x^2z}+\frac{5}{x^2z}+\frac{1}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2220: $\left(\frac{(xyz+x+z)^2}{x^2yz^2}, \frac{x}{z}, \frac{x^3y^2z^2}{(xyz+x+z)^2}\right)$
3490	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1868: $\left(\frac{(y+1)(xz+y+1)}{xy}, y, \frac{x^2yz}{(y+1)(xz+y+1)}\right)$
3498	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2216: $\left(x, \frac{(xz+1)^2}{x^2yz^2}, z\right)$
3644	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2220: $\left(\frac{(yz+1)(x+yz+1)}{yz^2}, x, \frac{y^2z^3}{(yz+1)(x+yz+1)}\right)$
3691	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2z}{x^2}+\frac{3z^2}{x^2y}+\frac{6z}{x^2y}+\frac{3}{x^2y}+\frac{3z^2}{x^3y}+\frac{3z}{x^3y}+\frac{z^2}{x^4y}$	2652: $\left(x, \frac{z(x+y)(xy+x+y)}{x^2}, y\right)$
3696	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{4y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{5y^2}{x^2z}+\frac{4y}{x^2}+\frac{5y}{x^2z}+\frac{2y^3}{x^3z^2}+\frac{6y^2}{x^3z}+\frac{2y^2}{x^3z^2}+\frac{4y^3}{x^4z^2}+\frac{y^4}{x^5z^3}$	3172: $\left(\frac{x^2yz+xz+1}{xyz}, \frac{x^2yz+xz+1}{x^2y^2z}, \frac{z}{y}\right)$
3771	$x+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{3}{x^2z}+\frac{8}{x^2yz}+\frac{7}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2841: $\left(\frac{(xyz+z+1)^2}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+z+1)^2}\right)$
3781	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{9}{x^2yz}+\frac{2}{x^2yz^2}+\frac{4}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{7}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{2}{x^4yz^3}+\frac{4}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	2037: $\left(\frac{(xz+1)^3}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^3}\right)$
3840	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{2y}{x^2z}+\frac{7}{x^2z}+\frac{8}{x^2yz}+\frac{3}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{4}{x^3z^2}+\frac{6}{x^3yz^2}+\frac{4}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2998: $\left(\frac{(xyz+z+1)^2}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+z+1)^2}\right)$
3909	$x+y+z+\frac{3z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{3z^2}{x^2y}+\frac{10z}{x^2y}+\frac{12}{x^2y}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{z^3}{x^3y^2}+\frac{5z^2}{x^3y^2}+\frac{10z}{x^3y^2}+\frac{10}{x^3y^2}+\frac{5}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	3212: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}, z\right)$

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Table 101 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 101a
3913	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{7}{x^2yz}+\frac{2}{x^2yz^2}+\frac{4}{x^2y^2z}+\frac{3}{x^3z^2}+\frac{8}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{3}{x^4yz^3}+\frac{4}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	2517: $\left(\frac{(yz+1)(xyz+(yz+1)^2)}{y^3z^2}, x, \frac{y^4z^3}{(yz+1)(xyz+(yz+1)^2)}\right)$
3956	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{7}{x^2yz}+\frac{6}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2879: $\left(\frac{(xyz+y+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+y+1)(xyz+(y+1)^2)}\right)$
3961	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{5y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{5y}{x^2}+\frac{9y}{x^2z}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{10y}{x^3z}+\frac{7y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{10y}{x^4z^2}+\frac{2y}{x^4z^3}+\frac{5y}{x^5z^3}+\frac{y}{x^6z^4}$	3260: $\left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, z\right)$

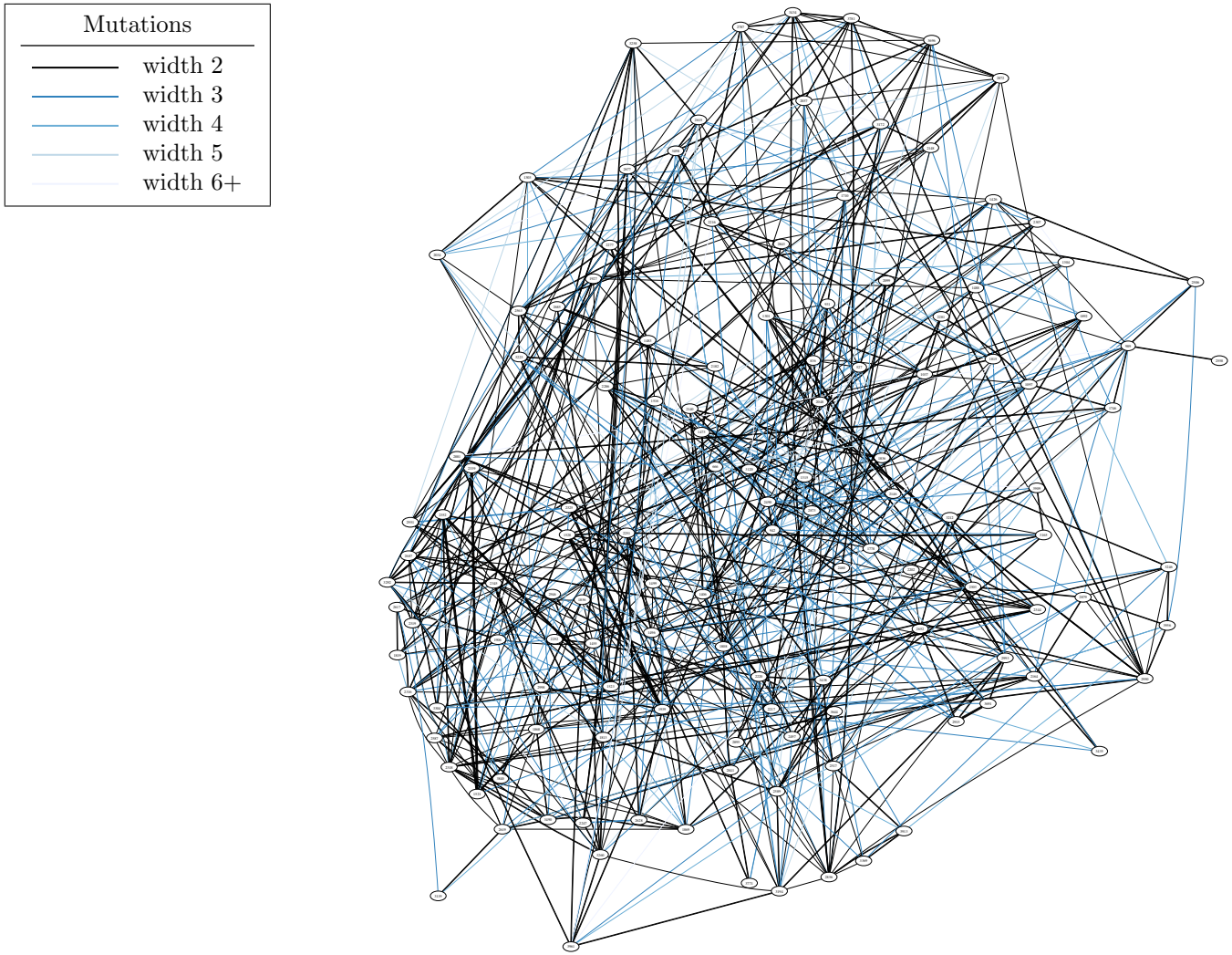

FIGURE 101B. All mutations between Minkowski polynomials in bucket 101

Bucket 102

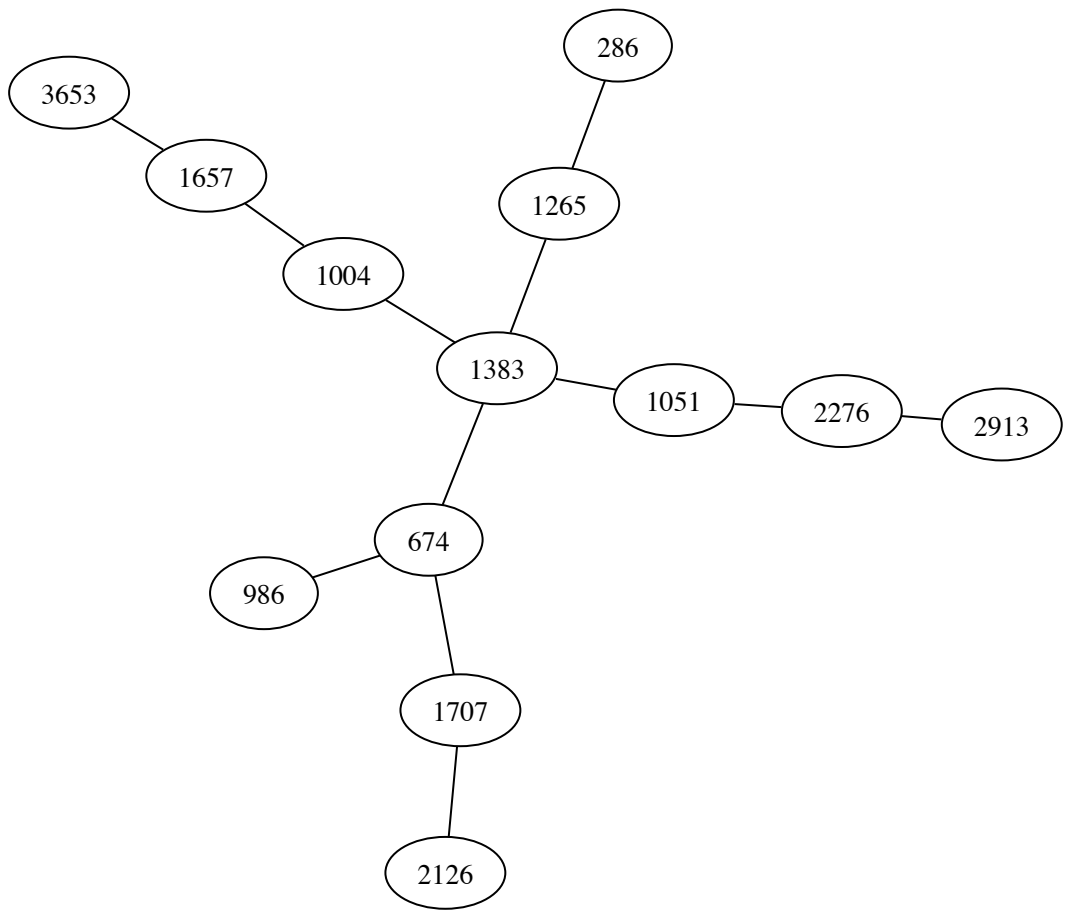

Figure 102a. Selected width-2 mutations between Minkowski polynomials in bucket 102

Table 102. Laurent polynomials and selected mutations for bucket 102.

Node	Laurent polynomial	Mutations from Figure 102a
286	$x+\frac{x}{z}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	1265: $\left(\frac{(y+1)^3}{xy^2}, y, \frac{(y+1)^3}{xy^2z}\right)$
674	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	986: $\left(x, \frac{xz+(x+1)^2}{xy}, \frac{x}{z}\right)$ 1383: $\left(\frac{(y+1)^2}{xy}, y, \frac{(y+1)^2}{xyz}\right)$ 1707: $\left(y, \frac{y^2+z(y+1)^2}{xyz}, \frac{xy^2}{y^2+z(y+1)^2}\right)$
986	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2y}$	674: $\left(x, \frac{x^2+z(x+1)^2}{xyz}, \frac{x}{z}\right)$
1004	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	1383: $\left(y, \frac{xy}{y+1}, \frac{z(y+1)}{y}\right)$ 1657: $\left(\frac{1+z(y+1)^2}{xyz}, y, z\right)$
1051	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	1383: $\left(y, \frac{xy}{y+1}, \frac{y+1}{xz}\right)$ 2276: $\left(\frac{xyz}{yz+z+1}, y, \frac{x}{yz+z+1}\right)$
1265	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	286: $\left(\frac{(y+1)^3}{xy^2}, y, \frac{x}{z}\right)$ 1383: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1383	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	674: $\left(\frac{(y+1)^2}{xy}, y, \frac{x}{z}\right)$ 1004: $\left(\frac{y(x+1)}{x}, x, \frac{xz}{x+1}\right)$ 1051: $\left(\frac{y(x+1)}{x}, x, \frac{x}{yz}\right)$ 1265: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
1657	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1004: $\left(\frac{1+z(y+1)^2}{xyz}, y, z\right)$ 3653: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, y, \frac{(xyz+1)^2}{x^2y^2z}\right)$
1707	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	674: $\left(\frac{xyz+(x+1)^2}{xy}, x, \frac{x}{yz}\right)$ 2126: $\left(x, y, \frac{y}{z(xy+(y+1)^2)}\right)$
2126	$x+yz+y+z+\frac{2}{y}+\frac{y^2z}{x}+\frac{3yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	1707: $\left(x, y, \frac{y}{z(xy+(y+1)^2)}\right)$

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Table 102 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 102a
2276	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1051: $\left(\frac{xy+x+yz}{y}, y, \frac{x}{yz}\right)$ 2913: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
2913	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	2276: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
3653	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{5}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2z}+\frac{6}{x^2yz}+\frac{7}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{3}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	1657: $\left(\frac{(xyz+1)^2}{xy^2z^2}, y, \frac{x^2y^2z^3}{(xyz+1)^2}\right)$

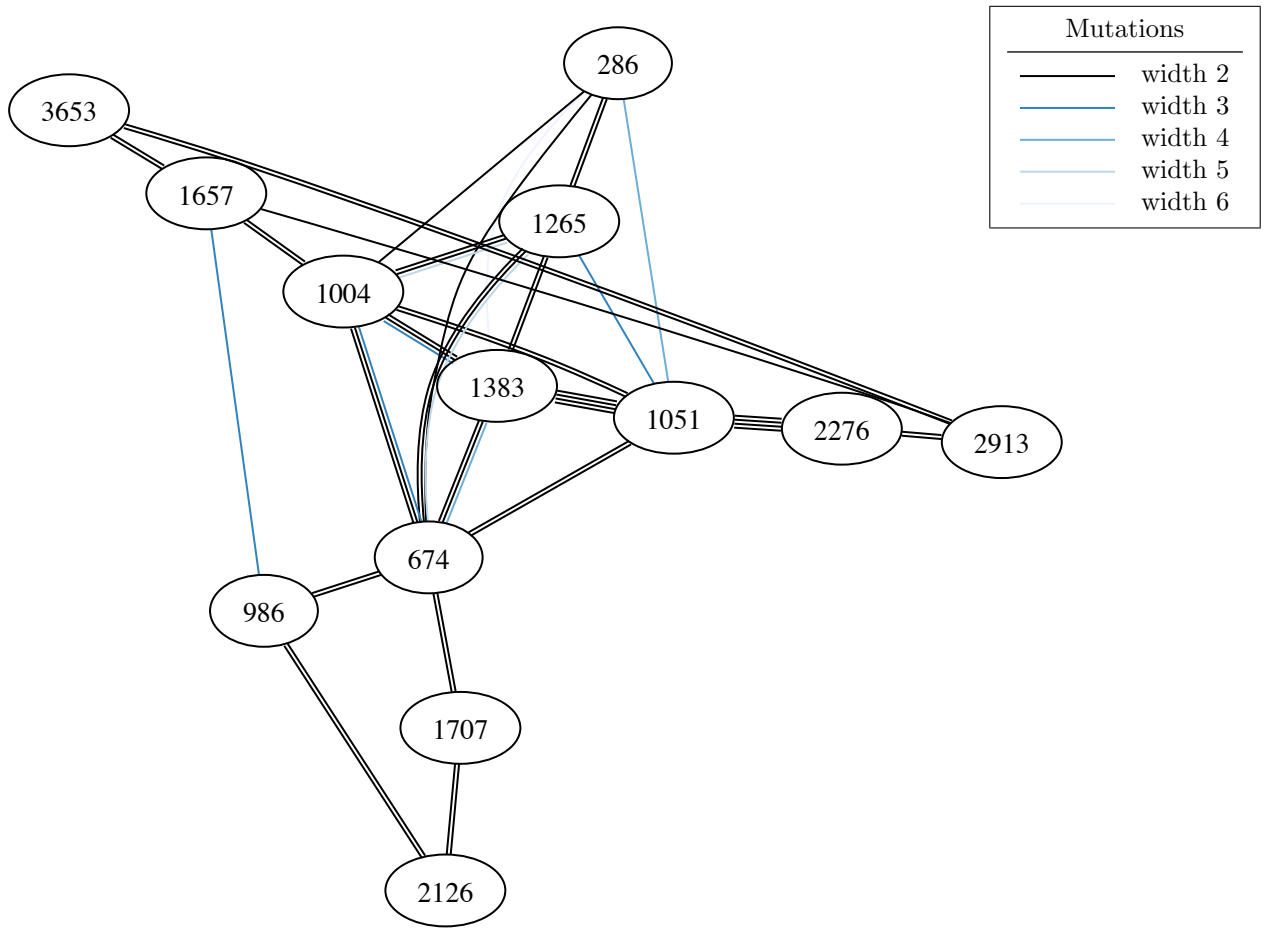

Figure 102b. All mutations between Minkowski polynomials in bucket 102

Bucket 103

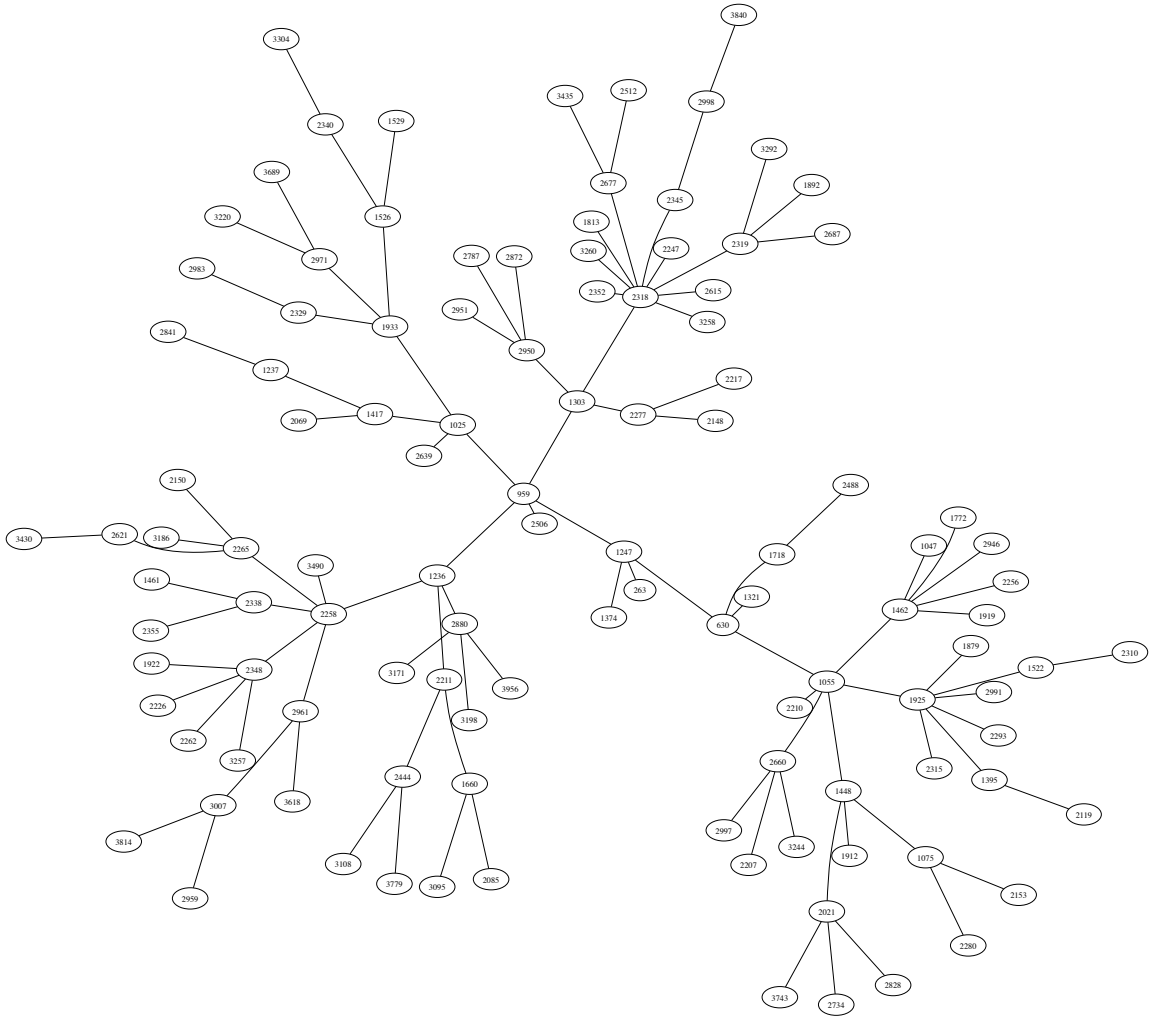

Figure 103a. Selected width-2 mutations between Minkowski polynomials in bucket 103

Table 103. Laurent polynomials and selected mutations for bucket 103.

Node	Laurent polynomial	Mutations from Figure 103a
263	$\frac{xy}{z}+x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	1247: $\left(\frac{xz}{y+z}, y, z\right)$
630	$\frac{xy}{z}+x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1055: $\left(y, \frac{y+1}{x}, z\right)$ 1247: $\left(\frac{(y+1)^2}{xy}, y, z\right)$ 1321: $\left(y, \frac{(y+1)^2}{xy}, z\right)$ 1718: $\left(y, \frac{yz+(y+1)^2}{xy}, \frac{yz+(y+1)^2}{xz}\right)$
959	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1025: $\left(x, y, \frac{y(y+1)}{xz}\right)$ 1236: $\left(y, \frac{xyz}{x+yz}, \frac{x^2}{x+yz}\right)$ 1247: $\left(\frac{(y+1)^2(y+z)}{xyz}, y, z\right)$ 1303: $\left(x, \frac{xyz}{xy+z}, \frac{xy^2}{xy+z}\right)$ 2506: $\left(y, \frac{x^2yz}{(xz+1)(xz+y)}, \frac{x^3z^2}{(xz+1)(xz+y)}\right)$
1025	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	959: $\left(x, y, \frac{y(y+1)}{xz}\right)$ 1417: $\left(x, \frac{xy}{x+yz}, \frac{y^2z}{x+yz}\right)$ 1933: $\left(y, \frac{y+1}{x}, \frac{z(y+1)}{x}\right)$ 2639: $\left(y, \frac{(y+1)^2}{xy}, \frac{z(y+1)^2}{xy}\right)$
1047	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1462: $\left(x, z, \frac{xz+z+1}{yz}\right)$
1055	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	630: $\left(\frac{x+1}{y}, x, z\right)$ 1448: $\left(y, \frac{xy}{xz+y}, \frac{x^2z}{xz+y}\right)$ 1462: $\left(z, \frac{xyz}{x+yz}, \frac{y^2z}{x+yz}\right)$ 1925: $\left(y, \frac{y+1}{x}, \frac{y+1}{xz}\right)$ 2210: $\left(\frac{y^2+z(y+1)^2}{xyz}, y, \frac{xy^2}{y^2+z(y+1)^2}\right)$ 2660: $\left(y, \frac{(y+1)^2}{xy}, \frac{(y+1)^2}{xyz}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
1075	$x+\frac{x}{y}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{x^2z}$	1448: $\left(y, \frac{xyz}{yz+y+z}, \frac{1}{z}\right)$ 2153: $\left(\frac{x^2z}{xyz+xz+y}, \frac{1}{y}, \frac{xyz+xz+y}{xy}\right)$ 2280: $\left(\frac{y^2z+(yz+1)^2}{xyz}, \frac{y^2z+(yz+1)^2}{xy^2z}, \frac{xy^2z^2}{y^2z+(yz+1)^2}\right)$
1236	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}$	959: $\left(y+z, x, \frac{y(y+z)}{xz}\right)$ 2211: $\left(x, y, \frac{x}{z(x+1)}\right)$ 2258: $\left(x, y, \frac{z(y+1)}{y}\right)$ 2880: $\left(x, y, \frac{x^2z}{(x+1)^2}\right)$
1237	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}$	1417: $\left(\frac{xy+x+yz}{xyz}, y, \frac{xy+x+yz}{x^2y}\right)$ 2841: $\left(y, z, \frac{(z+1)^2}{xz^2}\right)$
1247	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	263: $\left(\frac{x(y+z)}{z}, y, z\right)$ 630: $\left(\frac{(y+1)^2}{xy}, y, z\right)$ 959: $\left(\frac{(y+1)^2(y+z)}{xyz}, y, z\right)$ 1374: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
1303	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{x^2y}+\frac{z}{x^2y^2}$	959: $\left(x, \frac{xz+y}{x}, \frac{y(xz+y)}{xz}\right)$ 2277: $\left(y, x, \frac{xyz}{xy+1}\right)$ 2318: $\left(y, x, \frac{z(y+1)}{y}\right)$ 2950: $\left(z, y, \frac{xy^2z^2}{(yz+1)^2}\right)$
1321	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	630: $\left(\frac{(x+1)^2}{xy}, x, z\right)$
1374	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	1247: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
1395	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1925: $\left(x, y, \frac{z(y+1)}{y}\right)$ 2119: $\left(x, \frac{1+z(x+1)^2}{xyz}, z\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
1417	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2}$	1025: $\left(x, y+z, \frac{xz}{y(y+z)}\right)$ 1237: $\left(\frac{xy+x+yz}{xyz}, y, \frac{xy+x+yz}{x^2y}\right)$ 2069: $\left(\frac{(y+z)(y+z+1)}{xyz}, y, \frac{(y+z)(y+z+1)}{xy^2}\right)$
1448	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1055: $\left(y+z, x, \frac{xz}{y(y+z)}\right)$ 1075: $\left(\frac{y(xz+x+1)}{x}, x, \frac{1}{z}\right)$ 1912: $\left(x, y, \frac{yz}{y+1}\right)$ 2021: $\left(y, \frac{(yz+1)(yz+z+1)}{xyz}, \frac{(yz+1)(yz+z+1)}{xy^2z^2}\right)$
1461	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2338: $\left(x, \frac{xy}{x+1}, \frac{1}{z}\right)$
1462	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1047: $\left(x, \frac{xy+y+1}{yz}, y\right)$ 1055: $\left(\frac{y(xz+y)}{xz}, \frac{xz+y}{x}, x\right)$ 1772: $\left(y, \frac{xz+y}{x}, \frac{x^2z}{xz+y}\right)$ 1919: $\left(\frac{z(y+1)}{y}, x, y\right)$ 2256: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 2946: $\left(y, \frac{(y+1)(xz+y)}{xy}, \frac{x^2yz}{(y+1)(xz+y)}\right)$
1522	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1925: $\left(y, \frac{xz}{z+1}, \frac{x}{z+1}\right)$ 2310: $\left(\frac{yz+(z+1)^2}{xz}, \frac{yz+(z+1)^2}{xyz}, z\right)$
1526	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1529: $\left(\frac{xz+y}{yz}, x, \frac{y}{xz}\right)$ 1933: $\left(y, \frac{x}{z+1}, \frac{z+1}{xz}\right)$ 2340: $\left(\frac{(y+1)(y+z+1)}{xy}, z, \frac{1}{y}\right)$
1529	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}$	1526: $\left(y, \frac{y(z+1)}{x}, \frac{z+1}{xz}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
1660	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2085: $\left(\frac{xyz^2+(yz+1)^2}{xyz}, \frac{xyz^2+(yz+1)^2}{xy^2z^2}, \frac{xyz^2+(yz+1)^2}{x^2yz^2}\right)$ 2211: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 3095: $\left(\frac{(xz+1)(xy^2z+(y+z)^2)}{x^2yz^2}, \frac{(xz+1)(xy^2z+(y+z)^2)}{x^2y^2z}, \frac{(xz+1)(xy^2z+(y+z)^2)}{x^3y^2z^2}\right)$
1718	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	630: $\left(\frac{x^2y+z(x+1)^2}{xyz}, x, \frac{xy}{z}\right)$ 2488: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
1772	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	1462: $\left(\frac{x+yz}{y}, x, \frac{y^2z}{x+yz}\right)$
1813	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	2318: $\left(\frac{xy+z}{y}, \frac{xy^2}{xy+z}, z\right)$
1879	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	1925: $\left(x, \frac{y(x+1)}{x}, \frac{y}{xz}\right)$
1892	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	2319: $\left(\frac{xz+y+1}{x}, \frac{x^2z}{xz+y+1}, y\right)$
1912	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1448: $\left(x, y, \frac{z(y+1)}{y}\right)$
1919	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1462: $\left(y, z, \frac{xz}{z+1}\right)$
1922	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2348: $\left(\frac{y+z}{yz}, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$
1925	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1055: $\left(\frac{x+1}{y}, x, \frac{y}{z}\right)$ 1395: $\left(x, y, \frac{yz}{y+1}\right)$ 1522: $\left(y+z, x, \frac{y}{z}\right)$ 1879: $\left(x, \frac{xy}{x+1}, \frac{y}{z(x+1)}\right)$ 2293: $\left(y, \frac{xyz}{yz+1}, \frac{x}{yz+1}\right)$ 2315: $\left(x, y, \frac{xyz}{(y+1)(x+1)}\right)$ 2991: $\left(y, \frac{xy^2z}{(y+1)(yz+1)}, \frac{xy}{(y+1)(yz+1)}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
1933	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1025: $\left(\frac{x+1}{y}, x, \frac{z}{y}\right)$ 1526: $\left(\frac{yz+1}{z}, x, \frac{1}{yz}\right)$ 2329: $\left(x, \frac{xz+z+1}{yz}, z\right)$ 2971: $\left(y, \frac{xy}{y+z+1}, z\right)$
2021	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1448: $\left(\frac{(y+z)(xy+xz+y)}{xy^2z}, x, \frac{y}{xz}\right)$ 2734: $\left(\frac{x^2}{xyz+x+y}, \frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}\right)$ 2828: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{xz}{x+y}\right)$ 3743: $\left(\frac{x^3y^2}{(xy+1)(xyz+xy+1)}, \frac{(xy+1)(xyz+xy+1)}{x^2y}, \frac{x^3y^2z}{(xy+1)(xyz+xy+1)}\right)$
2069	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	1417: $\left(\frac{(x+z)(xy+x+yz)}{x^2yz}, y, \frac{yz}{x}\right)$
2085	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1660: $\left(\frac{x^2y+z(x+y)^2}{x^2yz}, \frac{x^2y+z(x+y)^2}{x^2y^2}, \frac{x^3y}{x^2y+z(x+y)^2}\right)$
2119	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1395: $\left(x, \frac{1+z(x+1)^2}{xyz}, z\right)$
2148	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	2277: $\left(\frac{xy+1}{x}, z, \frac{x^2y}{xy+1}\right)$
2150	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	2265: $\left(x, \frac{(x+1)^2}{xy}, z\right)$
2153	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	1075: $\left(\frac{xyz+xz+y}{yz}, y, \frac{xy^2z^2}{xyz+xz+y}\right)$
2207	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	2660: $\left(x, y, \frac{z(y+1)}{y}\right)$
2210	$x+yz+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	1055: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{y}{xz}\right)$
2211	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1236: $\left(x, y, \frac{x}{z(x+1)}\right)$ 1660: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$ 2444: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$
2217	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2277: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2226	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	2348: $\left(\frac{(x+z)(x+y)}{x^2y}, \frac{(x+z)(x+y)}{x^2z}, \frac{x^3}{(x+z)(x+y)}\right)$
2247	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	2318: $\left(\frac{(xy+1)^2}{xy^2}, z, \frac{x^2y^3}{z(xy+1)^2}\right)$
2256	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1462: $\left(\frac{(z+1)^2}{xz}, y, z\right)$
2258	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1236: $\left(x, y, \frac{yz}{y+1}\right)$ 2265: $\left(\frac{xz+y+1}{x}, y, \frac{xz+y+1}{x^2z}\right)$ 2338: $\left(x, y, \frac{xz}{x+1}\right)$ 2348: $\left(x, \frac{y(xz+x+z)}{xz}, z\right)$ 2961: $\left(x, \frac{(xz+x+z)^2}{x^2yz}, z\right)$ 3490: $\left(\frac{x^2yz}{xyz+y+1}, y, \frac{xy}{xyz+y+1}\right)$
2262	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	2348: $\left(\frac{(y+z)(x+z)}{xyz}, \frac{y}{z}, \frac{(y+z)(x+z)}{x^2z}\right)$
2265	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2150: $\left(x, \frac{(x+1)^2}{xy}, z\right)$ 2258: $\left(\frac{x+yz+z}{xz}, y, \frac{x^2}{x+yz+z}\right)$ 2621: $\left(x, \frac{(x+1)(xz+1)}{xyz}, z\right)$ 3186: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
2277	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1303: $\left(y, x, \frac{z(xy+1)}{xy}\right)$ 2148: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, y\right)$ 2217: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$
2280	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1075: $\left(\frac{x^2z+y(xz+1)^2}{x^2yz}, \frac{x}{y}, yz\right)$
2293	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1925: $\left(y+z, x, \frac{y}{xz}\right)$
2310	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1522: $\left(\frac{xz+y(z+1)^2}{xyz}, \frac{x}{y}, z\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2315	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1925: $\left(x, y, \frac{z(y+1)(x+1)}{xy}\right)$
2318	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2y^2}+\frac{z}{x^2y^3}$	1303: $\left(y, x, \frac{xz}{x+1}\right)$ 1813: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, z\right)$ 2247: $\left(\frac{x^3y^2z^2}{(xyz+1)^2}, \frac{(xyz+1)^2}{x^2yz}, y\right)$ 2319: $\left(\frac{xz+1}{x}, \frac{x^2z}{xz+1}, \frac{xyz}{xz+1}\right)$ 2345: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{z}{y}\right)$ 2352: $\left(x, y, \frac{xyz}{xy+1}\right)$ 2615: $\left(\frac{xyz+xz+1}{xy}, \frac{x^2yz}{xyz+xz+1}, \frac{x^2z}{xyz+xz+1}\right)$ 2677: $\left(\frac{x^3y^2z}{(xy+1)(xyz+1)}, \frac{(xy+1)(xyz+1)}{x^2yz}, \frac{1}{z}\right)$ 3258: $\left(\frac{(xz+1)(xyz+xz+1)}{x^2yz}, \frac{x^3yz^2}{(xz+1)(xyz+xz+1)}, \frac{x^3z^2}{(xz+1)(xyz+xz+1)}\right)$ 3260: $\left(\frac{xyz+xz+y}{xy}, \frac{x^2yz}{xyz+xz+y}, y\right)$
2319	$x+\frac{x}{y}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1892: $\left(\frac{xy+z+1}{x}, z, \frac{x^2y}{xy+z+1}\right)$ 2318: $\left(\frac{xy+1}{x}, \frac{z(xy+1)}{xy}, \frac{x^2y}{xy+1}\right)$ 2687: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, y, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$ 3292: $\left(\frac{(xz+1)^2(xz+y+1)}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^2(xz+y+1)}\right)$
2329	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1933: $\left(x, \frac{xz+z+1}{yz}, z\right)$ 2983: $\left(x, y, \frac{xyz}{(y+1)(x+1)}\right)$
2338	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1461: $\left(x, \frac{y(x+1)}{x}, z\right)$ 2258: $\left(x, y, \frac{z(x+1)}{x}\right)$ 2355: $\left(x, \frac{y(z+1)}{z}, \frac{1}{z}\right)$
2340	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1526: $\left(\frac{(z+1)(yz+z+1)}{xz}, \frac{1}{z}, y\right)$ 3304: $\left(x, \frac{xyz}{(z+1)(x+1)}, z\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2345	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2318: $\left(\frac{xy+1}{y}, \frac{xy^2}{z(xy+1)}, \frac{xy^2}{xy+1}\right)$ 2998: $\left(y, z, \frac{(yz+z+1)(yz+y+1)}{xy^2z}\right)$
2348	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	1922: $\left(y+z, \frac{y+z}{xz}, \frac{y+z}{xy}\right)$ 2226: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{(yz+1)(xz+1)}{x^2yz^2}, \frac{(yz+1)(xz+1)}{xy^2z^2}\right)$ 2258: $\left(x, z, \frac{xyz}{xz+x+z}\right)$ 2262: $\left(\frac{(y+1)(xy+z)}{xyz}, \frac{(y+1)(xy+z)}{x^2y}, \frac{(y+1)(xy+z)}{x^2y^2}\right)$ 3257: $\left(\frac{(y+1)(xz+1)(xz+y)}{x^2yz}, \frac{(y+1)(xz+1)(xz+y)}{x^3z^2}, \frac{(y+1)(xz+1)(xz+y)}{x^3yz^2}\right)$
2352	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2318: $\left(x, y, \frac{z(xy+1)}{xy}\right)$
2355	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2338: $\left(x, \frac{y}{z+1}, \frac{1}{z}\right)$
2444	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	2211: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$ 3108: $\left(\frac{x+y(xz+1)^2}{x^2yz}, \frac{x^3yz^2}{x+y(xz+1)^2}, \frac{x^2y^2z^2}{x+y(xz+1)^2}\right)$ 3779: $\left(\frac{x^2y^2z}{xy^2z+(y+z)^2}, \frac{xy^2z+(y+z)^2}{xyz}, \frac{xy^2z+(y+z)^2}{xy^2}\right)$
2488	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1718: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
2506	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	959: $\left(\frac{(y+z)(xz+y)}{xz}, x, \frac{x^2z^2}{y(y+z)(xz+y)}\right)$
2512	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2677: $\left(x, \frac{x^2yz+(xyz+1)^2}{x^2y^2z}, yz\right)$
2615	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2318: $\left(\frac{xy^2+xyz+z}{xy}, \frac{y}{z}, \frac{x^2y^2}{xy^2+xyz+z}\right)$
2621	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2265: $\left(x, \frac{(x+1)(xz+1)}{xyz}, z\right)$ 3430: $\left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$
2639	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1025: $\left(\frac{(x+1)^2}{xy}, x, \frac{z}{y}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2660	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1055: $\left(\frac{(x+1)^2}{xy}, x, \frac{y}{z}\right)$ 2207: $\left(x, y, \frac{yz}{y+1}\right)$ 2997: $\left(x, y, \frac{y+1}{xz}\right)$ 3244: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
2677	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z}$	2318: $\left(\frac{(xy+1)(xy+z)}{xy^2}, \frac{x^2y^3}{(xy+1)(xy+z)}, \frac{1}{z}\right)$ 2512: $\left(x, \frac{x^2z+(xz+1)^2}{x^2yz}, \frac{x^2yz^2}{x^2z+(xz+1)^2}\right)$ 3435: $\left(x, \frac{xyz}{xz+x+1}, \frac{xz+x+1}{xy}\right)$
2687	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2319: $\left(\frac{(xz+1)(xz+y+1)}{x^2z}, y, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
2734	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{4y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	2021: $\left(\frac{xy+yz+1}{y}, \frac{xy+yz+1}{xy^2}, \frac{y^2z}{xy+yz+1}\right)$
2787	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^3}$	2950: $\left(\frac{(yz+1)^2}{yz^2}, x, \frac{y^2z^3}{(yz+1)^2}\right)$
2828	$x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{3y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	2021: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z(xy+1)}{xy}\right)$
2841	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1237: $\left(\frac{(y+1)^2}{y^2z}, x, y\right)$
2872	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^4yz^3}$	2950: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$
2880	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1236: $\left(x, y, \frac{z(x+1)^2}{x^2}\right)$ 3171: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 3198: $\left(x, \frac{xy}{x+1}, \frac{x+1}{xz}\right)$ 3956: $\left(\frac{(xyz+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+1)(xyz+(y+1)^2)}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2946	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{1}{x^3z^2}$	1462: $\left(\frac{(x+1)(x+yz)}{xy}, x, \frac{xy^2z}{(x+1)(x+yz)}\right)$
2950	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	1303: $\left(\frac{z(xy+1)^2}{x^2y^2}, y, x\right)$ 2787: $\left(y, \frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2z}\right)$ 2872: $\left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$ 2951: $\left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$
2951	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3yz^2}$	2950: $\left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$
2959	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	3007: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, z\right)$
2961	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	2258: $\left(x, \frac{(xz+x+z)^2}{x^2yz}, z\right)$ 3007: $\left(x, y, \frac{xz}{x+1}\right)$ 3618: $\left(x, y, \frac{x^3y}{z(x+1)^2(xy+x+1)}\right)$
2971	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	1933: $\left(\frac{y(x+z+1)}{x}, x, z\right)$ 3220: $\left(x, y, \frac{xyz}{xy+y+1}\right)$ 3689: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$
2983	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	2329: $\left(x, y, \frac{z(y+1)(x+1)}{xy}\right)$
2991	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	1925: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{y}{xz}\right)$
2997	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2660: $\left(x, y, \frac{y+1}{xz}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
2998	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2345: $\left(\frac{(xy+y+1)(xy+x+1)}{x^2yz}, x, y\right)$ 3840: $\left(\frac{x^3y^2z^2}{(xyz+y+1)^2}, \frac{(xyz+y+1)^2}{x^2y^2z}, y\right)$
3007	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	2959: $\left(\frac{xyz+z+1}{xz}, \frac{x^2yz}{xyz+z+1}, \frac{1}{z}\right)$ 2961: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3814: $\left(\frac{(xz+y+1)(xyz+y+1)}{x^2yz}, \frac{x^3yz^2}{(xz+y+1)(xyz+y+1)}, y\right)$
3095	$x+y+z+\frac{2z}{y}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1660: $\left(\frac{(y+z)(x^2y+z(x+y)^2)}{x^2y^2z}, \frac{x^3y^2}{(y+z)(x^2y+z(x+y)^2)}, \frac{x^2y^3}{(y+z)(x^2y+z(x+y)^2)}\right)$
3108	$x+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{3}{x^2yz^2}+\frac{2y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	2444: $\left(\frac{y+z(xy+1)^2}{x^2yz}, \frac{y+z(xy+1)^2}{x^2y^2}, \frac{x^3y^2z}{y+z(xy+1)^2}\right)$
3171	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	2880: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
3186	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2265: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
3198	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{4z}{xy}+\frac{4}{xy}+\frac{3z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^2}$	2880: $\left(x, \frac{y(x+1)}{x}, \frac{x+1}{xz}\right)$
3220	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	2971: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$
3244	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	2660: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
3257	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2348: $\left(\frac{(y+z)(x+z)(x+y)}{x^2yz}, \frac{y}{z}, \frac{x^3y}{(y+z)(x+z)(x+y)}\right)$
3258	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^3}$	2318: $\left(\frac{(xy+1)(xy^2+xyz+z)}{x^2y^2}, \frac{y}{z}, \frac{x^3y^3}{(xy+1)(xy^2+xyz+z)}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
3260	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{1}{x^2yz}+\frac{3y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{y}{x^4z^3}$	2318: $\left(\frac{xyz+xy+z}{xz}, z, \frac{x^2yz}{xyz+xy+z}\right)$
3292	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{3}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	2319: $\left(\frac{(xz+1)^2(xz+y+1)}{x^3z^2}, y, \frac{x^4z^3}{(xz+1)^2(xz+y+1)}\right)$
3304	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2340: $\left(x, \frac{y(z+1)(x+1)}{xz}, z\right)$
3430	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2621: $\left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$
3435	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{4}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^3yz}+\frac{2}{x^3yz^2}+\frac{1}{x^4yz^2}$	2677: $\left(x, \frac{xyz+x+1}{xz}, yz\right)$
3490	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2258: $\left(\frac{xy+yz+z}{y}, y, \frac{xy}{z(xy+yz+z)}\right)$
3618	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2z}{x}+\frac{2}{x}+\frac{6z}{xy}+\frac{4}{xy}+\frac{4z}{xy^2}+\frac{z}{x^2}+\frac{6z}{x^2y}+\frac{2}{x^2y}+\frac{6z}{x^2y^2}+\frac{2z}{x^3y}+\frac{4z}{x^3y^2}+\frac{z}{x^4y^2}$	2961: $\left(x, y, \frac{x^3y}{z(x+1)^2(xy+x+1)}\right)$
3689	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{2}{xy^2}+\frac{5}{xy^2z}+\frac{2}{xy^3z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^2y^4z}$	2971: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
3743	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{6z}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{4z}{x^2y}+\frac{10}{x^2y}+\frac{3}{x^2yz}+\frac{2}{x^2y^2z}+\frac{6}{x^3y^2}+\frac{7}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{4}{x^4y^3z}+\frac{2}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	2021: $\left(\frac{(xy+1)(xy+yz+1)}{xy^2}, \frac{x^2y^3}{(xy+1)(xy+yz+1)}, \frac{z}{x}\right)$
3779	$x+y+z+\frac{2z}{y}+\frac{y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{5z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{3}{x^2z}+\frac{8}{x^2y}+\frac{7z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{6}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z^2}{x^3y^4}$	2444: $\left(\frac{xy^2z+(y+z)^2}{y^2z}, \frac{xy^3z}{xy^2z+(y+z)^2}, \frac{xy^2z^2}{xy^2z+(y+z)^2}\right)$
3814	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{8}{x^2z}+\frac{5}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3007: $\left(\frac{(xy+z+1)(xyz+z+1)}{x^2yz}, z, \frac{x^3y^2z}{(xy+z+1)(xyz+z+1)}\right)$
3840	$x+y+z+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}+\frac{2y}{x^2z}+\frac{7}{x^2z}+\frac{8}{x^2yz}+\frac{3}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{4}{x^3z^2}+\frac{6}{x^3yz^2}+\frac{4}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	2998: $\left(\frac{(xyz+z+1)^2}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+z+1)^2}\right)$

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Table 103 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 103a
3956	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{9}{x^2yz}+\frac{7}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	2880: $\left(\frac{(xyz+1)(xyz+(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+1)(xyz+(y+1)^2)}\right)$

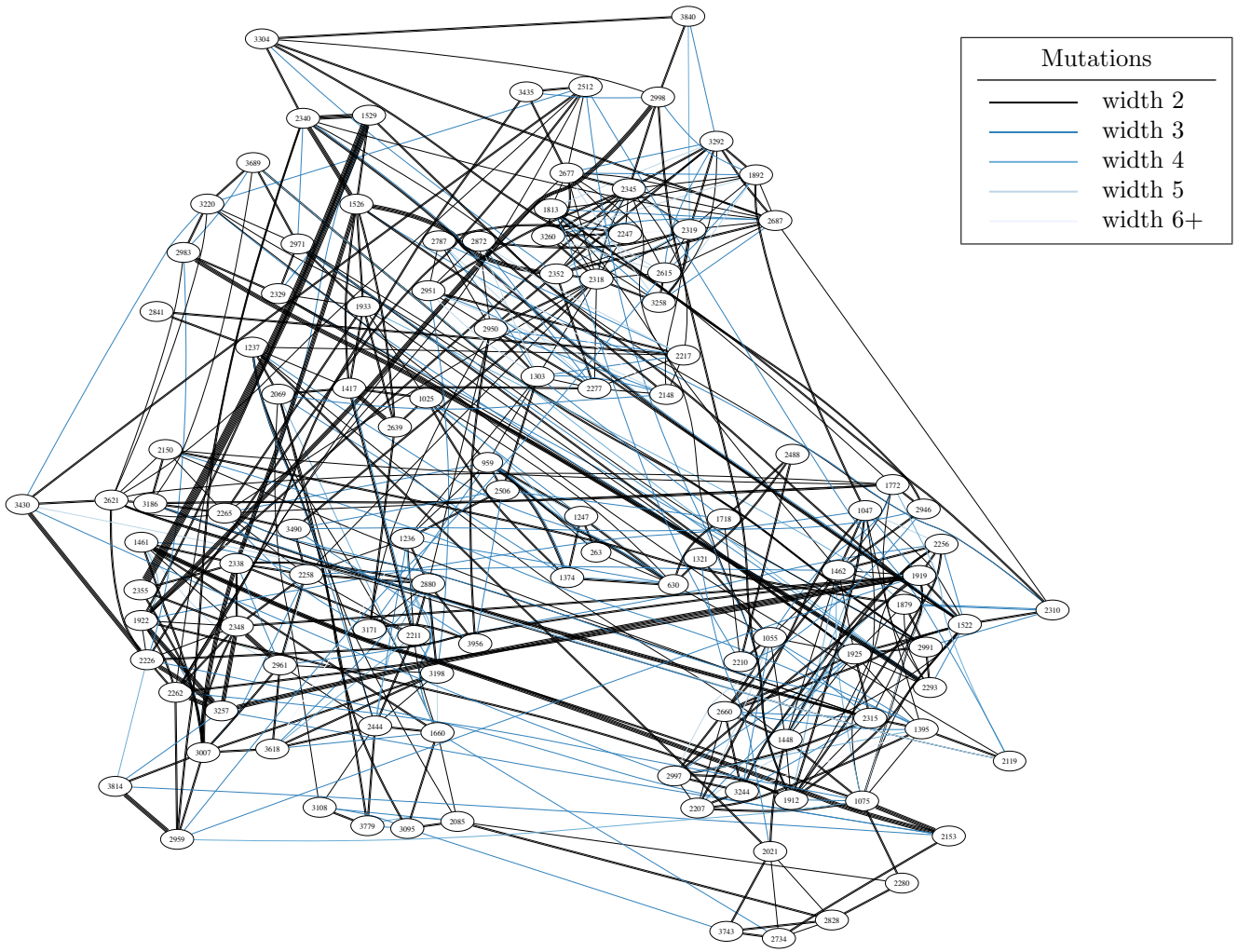

Figure 103b. All mutations between Minkowski polynomials in bucket 103

Bucket 104

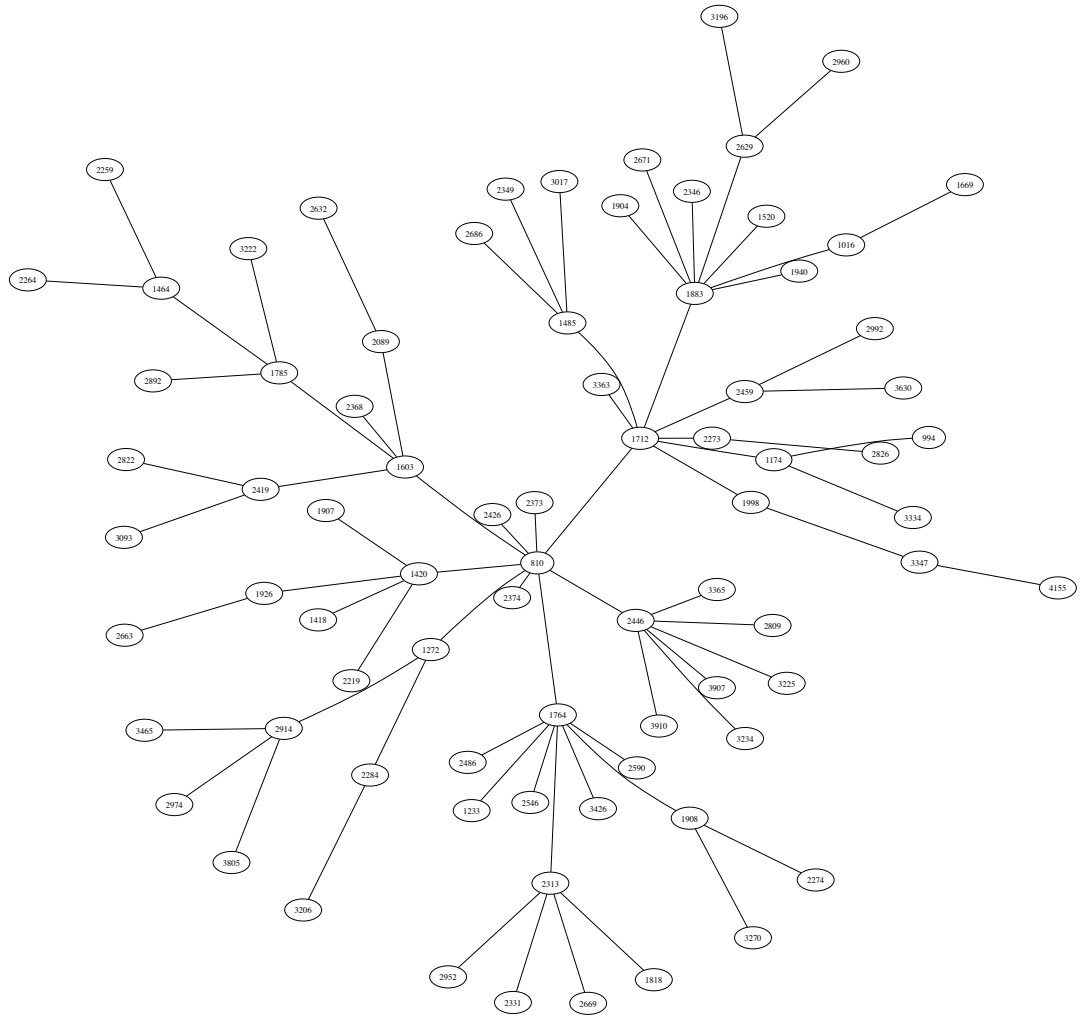

Figure 104a. Selected width-2 mutations between Minkowski polynomials in bucket 104

Table 104. Laurent polynomials and selected mutations for bucket 104.

Node	Laurent polynomial	Mutations from Figure 104a
810	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	1272: $\left(\frac{x+y+z}{yz}, \frac{x+y+z}{xy}, \frac{x+y+z}{x^2}\right)$ 1420: $\left(\frac{xy+x+yz}{xz}, y, \frac{x^2y}{xy+x+yz}\right)$ 1603: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 1712: $\left(x, y, \frac{z(x+y)}{x}\right)$ 1764: $\left(x, y, \frac{yz}{y+1}\right)$ 2373: $\left(\frac{(xyz^2+xyz+1)^2}{x^2yz^2}, \frac{(xyz^2+xyz+1)^2}{x^3y^2z^3}, \frac{(xyz^2+xyz+1)^2}{x^3y^2z^2}\right)$ 2374: $\left(y, \frac{(xz+1)^2}{x^2z}, \frac{(xz+1)^2}{x^3z^2}\right)$ 2426: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+y^2)^2}\right)$ 2446: $\left(y, z, \frac{(y+z)^2}{xy^2}\right)$
994	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{x^2}$	1174: $\left(\frac{x^2yz}{x^2yz^2+xyz+1}, y, \frac{x^3yz^2}{x^2yz^2+xyz+1}\right)$
1016	$xy+x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1669: $\left(\frac{xyz}{yz+(y+1)^2}, \frac{yz+(y+1)^2}{xy}, y\right)$ 1883: $\left(\frac{x}{y+1}, y, z\right)$
1174	$xz^2+2xz+x+y+2z+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	994: $\left(\frac{x^2+xyz+yz^2}{yz}, y, \frac{yz^2}{x(x^2+xyz+yz^2)}\right)$ 1712: $\left(\frac{x+y}{xz}, \frac{x^2}{x+y}, \frac{z}{y}\right)$ 3334: $\left(\frac{xy^2}{xyz^2+(y+z)^2}, \frac{xyz^2+(y+z)^2}{y}, \frac{xyz^2+(y+z)^2}{x^2y^2z}\right)$
1233	$x+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1764: $\left(\frac{z(y+1)}{y}, y, \frac{x}{y+1}\right)$
1272	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	810: $\left(\frac{xy+xz+y^2}{xyz}, \frac{xy+xz+y^2}{xy^2}, \frac{xy+xz+y^2}{x^2z}\right)$ 2284: $\left(x, \frac{xy}{x+1}, z\right)$ 2914: $\left(y, \frac{(y+z)^2}{xyz}, z\right)$
1418	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{3}{y}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{x^2y}$	1420: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
1420	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{z}{x^2}$	810: $\left(\frac{xyz+xz+y^2}{xy}, y, \frac{xyz+xz+y^2}{x^2z}\right)$ 1418: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 1907: $\left(x, \frac{x+1}{y}, z\right)$ 1926: $\left(x, y, \frac{xz}{x+1}\right)$ 2219: $\left(x, \frac{(x+1)^2}{xy}, z\right)$
1464	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z}$	1785: $\left(\frac{xz+y+z}{yz}, x, \frac{xz^2}{xz+y+z}\right)$ 2259: $\left(\frac{x}{y+1}, \frac{xy}{y+1}, yz\right)$ 2264: $\left(y, x, \frac{xz}{x+y+1}\right)$
1485	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	1712: $\left(y, \frac{yz+y+z}{xz}, \frac{xy}{yz+y+z}\right)$ 2349: $\left(\frac{yz+1}{x}, z, y\right)$ 2686: $\left(y, z, \frac{xy}{y+z}\right)$ 3017: $\left(\frac{(yz+1)^2}{xyz}, y, z\right)$
1520	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	1883: $\left(y, \frac{(z+1)(y+1)}{xz}, \frac{(z+1)(y+1)}{x}\right)$
1603	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	810: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 1785: $\left(\frac{xyz+xz+y}{xy}, y, \frac{x^2yz}{xyz+xz+y}\right)$ 2089: $\left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{y^2z}{yz+1}\right)$ 2368: $\left(\frac{(yz+1)^2}{y^2z}, \frac{xy^2z^2}{(yz+1)^2}, \frac{y^3z^2}{(yz+1)^2}\right)$ 2419: $\left(\frac{(xyz+xz+y)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+y)^2}\right)$
1669	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{6}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}$	1016: $\left(\frac{xyz+(z+1)^2}{yz}, z, xy\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
1712	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	810: $\left(x, y, \frac{xz}{x+y}\right)$ 1174: $\left(\frac{xyz+1}{xz}, \frac{xyz+1}{x^2yz^2}, \frac{xyz+1}{x^2yz}\right)$ 1485: $\left(\frac{x+yz+1}{y}, x, \frac{x}{yz}\right)$ 1883: $\left(x, y, \frac{yz}{y+1}\right)$ 1998: $\left(\frac{x}{yz+1}, \frac{xyz}{yz+1}, \frac{y}{yz+1}\right)$ 2273: $\left(\frac{x+y}{yz}, \frac{x+y}{xy}, \frac{x+y}{x^2}\right)$ 2459: $\left(\frac{x^2z}{xz+1}, \frac{xyz}{xz+1}, \frac{x}{xz+1}\right)$ 3363: $\left(\frac{x^2y}{(z+1)(xy+1)}, \frac{x^2yz}{(z+1)(xy+1)}, \frac{x}{(z+1)(xy+1)}\right)$
1764	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{y}{x^2z}$	810: $\left(x, y, \frac{z(y+1)}{y}\right)$ 1233: $\left(y(z+1), z, \frac{xz}{z+1}\right)$ 1908: $\left(\frac{xyz+xz+y}{xy}, \frac{xyz+xz+y}{x^2z}, y\right)$ 2313: $\left(\frac{xz+y}{x}, y, \frac{x^2z}{xz+y}\right)$ 2486: $\left(\frac{(yz+1)^2}{y^2z}, \frac{x}{y}, \frac{xy^2z^2}{(yz+1)^2}\right)$ 2546: $\left(\frac{(xyz+xz+y)^2}{x^2y^2z}, \frac{(xyz+xz+y)^2}{x^3yz^2}, y\right)$ 2590: $\left(\frac{(y+1)(x+z)}{xz}, y, \frac{x^2y}{(y+1)(x+z)}\right)$ 3426: $\left(\frac{x^2yz}{xyz+y+1}, y, \frac{xyz+y+1}{xy}\right)$
1785	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	1464: $\left(x, \frac{xz+z+1}{yz}, \frac{xz+z+1}{y}\right)$ 1603: $\left(\frac{xyz+xz+y}{xy}, y, \frac{x^2yz}{xyz+xz+y}\right)$ 2892: $\left(y, \frac{(yz+z+1)(y^2z+yz+1)}{xy^2z^2}, \frac{(yz+z+1)(y^2z+yz+1)}{xy^2z}\right)$ 3222: $\left(y, \frac{xy^2z^2}{(yz+1)^2}, z\right)$
1818	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{3}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	2313: $\left(x, \frac{y(x+1)}{x}, z\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
1883	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1016: $(x(y+1),y,z)$ 1520: $\left(\frac{(y+z)(x+1)}{yz},x,\frac{z}{y}\right)$ 1712: $\left(x,y,\frac{z(y+1)}{y}\right)$ 1904: $\left(\frac{(yz+1)(x+y)}{xy},\frac{(yz+1)(x+y)}{xy^2z},\frac{x}{y}\right)$ 1940: $\left(\frac{y(x+z)}{x},\frac{x+z}{xz},\frac{z}{x}\right)$ 2346: $\left(x,\frac{y+z}{yz},\frac{y}{z}\right)$ 2629: $\left(\frac{(y+1)^2(yz+1)}{xy^2z},\frac{(y+1)^2(yz+1)}{xy},y\right)$ 2671: $\left(x,\frac{xyz}{xz+(z+1)^2},z\right)$
1904	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	1883: $\left(\frac{(z+1)(x+y)}{xy},\frac{(z+1)(x+y)}{xyz},\frac{x^2z}{(z+1)(x+y)}\right)$
1907	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{1}{xy}+\frac{z}{x^2}$	1420: $\left(x,\frac{x+1}{y},z\right)$
1908	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	1764: $\left(\frac{xz+x+y}{xy},z,\frac{x^2z}{xz+x+y}\right)$ 2274: $\left(y,\frac{xyz}{yz+z+1},z\right)$ 3270: $\left(y,\frac{xy^2z^2}{(yz+1)(yz+z+1)},z\right)$
1926	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1420: $\left(x,y,\frac{z(x+1)}{x}\right)$ 2663: $\left(y,\frac{xyz}{(z+1)(y+1)},z\right)$
1940	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xy}$	1883: $\left(\frac{z+1}{yz},\frac{x}{z+1},\frac{z+1}{y}\right)$
1998	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1712: $\left(x+y,\frac{z(x+y)}{x},\frac{x}{y(x+y)}\right)$ 3347: $\left(x,\frac{x^2y^3z^2}{(xyz+yz+1)^2},\frac{1}{xyz}\right)$
2089	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1603: $\left(\frac{y(xz+1)}{xz},\frac{xz+1}{x},\frac{x^2z}{xz+1}\right)$ 2632: $\left(x,\frac{xy}{x+1},\frac{z(x+1)}{x}\right)$
2219	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{1}{x^2y}$	1420: $\left(x,\frac{(x+1)^2}{xy},z\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
2259	$x+yz+y+z+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	1464: $\left(x+y, \frac{y}{x}, \frac{xz}{y}\right)$
2264	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1464: $\left(y, x, \frac{z(x+y+1)}{y}\right)$
2273	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	1712: $\left(\frac{y+z}{yz}, \frac{y+z}{xz}, \frac{y+z}{y^2}\right)$ 2826: $\left(y, \frac{xy^2z}{y+z(y+1)^2}, \frac{y+z(y+1)^2}{xy}\right)$
2274	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1908: $\left(\frac{y(xz+z+1)}{xz}, x, z\right)$
2284	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1272: $\left(x, \frac{y(x+1)}{x}, z\right)$ 3206: $\left(x, z, \frac{x+z+1}{yz}\right)$
2313	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1764: $\left(\frac{xz+y}{x}, y, \frac{x^2z}{xz+y}\right)$ 1818: $\left(x, \frac{xy}{x+1}, z\right)$ 2331: $\left(x, \frac{x+1}{y}, \frac{z(x+1)}{x}\right)$ 2669: $\left(x, \frac{x+1}{y}, z\right)$ 2952: $\left(x, \frac{(x+1)^2}{xy}, z\right)$
2331	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2313: $\left(x, \frac{x+1}{y}, \frac{xz}{x+1}\right)$
2346	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	1883: $\left(x, \frac{z+1}{y}, \frac{z+1}{yz}\right)$
2349	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1485: $\left(\frac{yz+1}{x}, z, y\right)$
2368	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1603: $\left(\frac{y(xz+1)^2}{x^2z^2}, \frac{(xz+1)^2}{x^2z}, \frac{x^3z^2}{(xz+1)^2}\right)$
2373	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{3z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^2z^3}$	810: $\left(\frac{(xy+xz+y^2)^2}{x^2y^2z}, \frac{x^3y^2}{(xy+xz+y^2)^2}, \frac{z}{y}\right)$
2374	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	810: $\left(\frac{(y+z)^2}{y^2z}, x, \frac{y^3}{(y+z)^2}\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
2419	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	1603: $\left(\frac{(xyz+xz+y)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+y)^2}\right)$ 2822: $\left(\frac{yz+1}{z}, \frac{xyz}{yz+1}, \frac{yz^2}{yz+1}\right)$ 3093: $\left(\frac{(yz+1)^2}{y^2z}, \frac{xy^2z^2}{(yz+1)^2}, \frac{y^3z^2}{(yz+1)^2}\right)$
2426	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}$	810: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+y^2)^2}\right)$
2446	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	810: $\left(\frac{(x+y)^2}{x^2z}, x, y\right)$ 2809: $\left(\frac{yz+1}{y}, \frac{x}{yz+1}, \frac{xyz}{yz+1}\right)$ 3225: $\left(\frac{x^2}{x+y+z}, \frac{x+y+z}{xz}, \frac{x+y+z}{xy}\right)$ 3234: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}, y\right)$ 3365: $\left(\frac{x^2z+x+y}{x^2}, \frac{x^3z}{x^2z+x+y}, \frac{x^2yz}{x^2z+x+y}\right)$ 3907: $\left(\frac{x^3z^2}{(xz+y+1)^2}, \frac{(xz+y+1)^2}{x^2z}, y\right)$ 3910: $\left(\frac{x^3y^2z^2}{(xyz+y+z)^2}, \frac{(xyz+y+z)^2}{x^2yz^2}, \frac{(xyz+y+z)^2}{x^2y^2z}\right)$
2459	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1712: $\left(\frac{(y+z)^2}{y^2z}, \frac{(y+z)^2}{xyz}, \frac{xy^2}{(y+z)^2}\right)$ 2992: $\left(x, \frac{xy^2z}{xyz+yz+1}, \frac{xyz+yz+1}{xy}\right)$ 3630: $\left(x, \frac{x^2y^3z^2}{(xyz+yz+1)^2}, \frac{(xyz+yz+1)^2}{x^2y^2z}\right)$
2486	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1764: $\left(\frac{(xz+y)^2}{x^2z}, \frac{(xz+y)^2}{x^2yz}, \frac{x^3z^2}{(xz+y)^2}\right)$
2546	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^2}$	1764: $\left(\frac{(xz+x+y)^2}{x^2yz}, z, \frac{x^3z^2}{(xz+x+y)^2}\right)$
2590	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	1764: $\left(\frac{(y+1)(xz+y)}{xy}, y, \frac{(y+1)(xz+y)}{x^2z}\right)$
2629	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1883: $\left(\frac{(z+1)^2(x+y)}{xyz}, z, \frac{y}{xz}\right)$ 2960: $\left(x, \frac{1}{y}, \frac{xyz}{(y+1)(x+1)}\right)$ 3196: $\left(x, \frac{1}{y}, \frac{(y+1)^2}{xz}\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
2632	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2089: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
2663	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1926: $\left(\frac{y(z+1)(x+1)}{xz}, x, z\right)$
2669	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2313: $\left(x, \frac{x+1}{y}, z\right)$
2671	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	1883: $\left(x, \frac{y(xz+(z+1)^2)}{xz}, z\right)$
2686	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1485: $\left(\frac{z(x+y)}{x}, x, y\right)$
2809	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y^2z}{x}+\frac{2yz}{x}+\frac{4y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y^2z}{x^2}+\frac{3y}{x^2}+\frac{3}{x^2z}+\frac{1}{x^2yz^2}$	2446: $\left(y+z, \frac{y+z}{xy}, \frac{xz}{y+z}\right)$
2822	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2z}{x}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	2419: $\left(\frac{y(xz+1)}{xz}, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$
2826	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4z}{x}+\frac{2}{x}+\frac{6z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{4z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2273: $\left(\frac{x^2+yz(x+1)^2}{x^2z}, x, \frac{yz}{x}\right)$
2892	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1785: $\left(\frac{(xz+y+z)(x^2z+xz+y)}{x^2yz^2}, x, \frac{z}{y}\right)$
2914	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	1272: $\left(\frac{(x+z)^2}{xyz}, x, z\right)$ 2974: $\left(x, y, \frac{yz}{y+1}\right)$ 3465: $\left(x, y, \frac{xy^2z}{(y+1)(xy+1)}\right)$ 3805: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$
2952	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	2313: $\left(x, \frac{(x+1)^2}{xy}, z\right)$
2960	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	2629: $\left(x, \frac{1}{y}, \frac{z(y+1)(x+1)}{x}\right)$
2974	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2914: $\left(x, y, \frac{z(y+1)}{y}\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
2992	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	2459: $\left(x, \frac{xyz+yz+1}{xz}, \frac{xyz^2}{xyz+yz+1}\right)$
3017	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1485: $\left(\frac{(yz+1)^2}{xyz}, y, z\right)$
3093	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2419: $\left(\frac{y(xz+1)^2}{x^2z^2}, \frac{(xz+1)^2}{x^2z}, \frac{x^3z^2}{(xz+1)^2}\right)$
3196	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	2629: $\left(x, \frac{1}{y}, \frac{(y+1)^2}{xy^2z}\right)$
3206	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	2284: $\left(x, \frac{x+y+1}{yz}, y\right)$
3222	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^3z^2}$	1785: $\left(\frac{y(xz+1)^2}{x^2z^2}, x, z\right)$
3225	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{3}{x}+\frac{2z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	2446: $\left(\frac{xyz+y+z}{yz}, \frac{xyz+y+z}{xyz^2}, \frac{xyz+y+z}{xy^2z}\right)$
3234	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2446: $\left(\frac{xy+z+1}{y}, z, \frac{xy^2}{xy+z+1}\right)$
3270	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1908: $\left(\frac{y(xz+1)(xz+z+1)}{x^2z^2}, x, z\right)$
3334	$xz^2+2xz+x+y+2z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2}{x^2z}+\frac{5}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1174: $\left(\frac{xy+(x^2yz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{xy+(x^2yz+1)^2}, \frac{x^2y^2z}{xy+(x^2yz+1)^2}\right)$
3347	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2yz^2}{x}+\frac{2yz}{x}+\frac{6z}{x}+\frac{4}{x}+\frac{6}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{yz^2}{x^2}+\frac{4z}{x^2}+\frac{6}{x^2y}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	1998: $\left(x, \frac{y(xz+x+1)^2}{x^2}, \frac{x}{yz(xz+x+1)^2}\right)$ 4155: $\left(\frac{(x^2yz+(xz+1)^2)^2}{x^4yz^2}, \frac{x^5y^2z^2}{(x^2yz+(xz+1)^2)^2}, \frac{(x^2yz+(xz+1)^2)^2}{x^4y^2z}\right)$
3363	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{4z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{5}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	1712: $\left(\frac{(y+z)^2(x+y)}{xy^2z}, \frac{x^2y^2}{(y+z)^2(x+y)}, \frac{y}{x}\right)$

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Table 104 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 104a
3365	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{3}{x^2yz^2}+\frac{2y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	2446: $\left(\frac{xy^2+y+z}{xy}, \frac{z(xy^2+y+z)}{xy^2}, \frac{x^2y^2}{xy^2+y+z}\right)$
3426	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1764: $\left(\frac{xyz+y+1}{yz}, y, \frac{xyz^2}{xyz+y+1}\right)$
3465	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	2914: $\left(x, y, \frac{z(y+1)(xy+1)}{xy^2}\right)$
3630	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{6}{xy}+\frac{3}{xyz}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{z}{x^2}+\frac{4}{x^2y}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	2459: $\left(x, \frac{(xyz+yz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$
3805	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{7}{xyz}+\frac{2}{xy^2}+\frac{6}{xy^2z}+\frac{2}{xy^3z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^2y^4z}$	2914: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$
3907	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{7}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2446: $\left(\frac{(xy+z+1)^2}{xy^2}, z, \frac{x^2y^3}{(xy+z+1)^2}\right)$
3910	$x+y+z+\frac{2z}{y}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{9}{x^2y}+\frac{7z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{6}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z^2}{x^3y^4}$	2446: $\left(\frac{(xyz+y+z)^2}{xy^2z^2}, \frac{x^2y^3z^2}{(xyz+y+z)^2}, \frac{x^2y^2z^3}{(xyz+y+z)^2}\right)$
4155	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+4z+\frac{9z^2}{y}+\frac{6z}{y}+\frac{6z^3}{y^2}+\frac{5}{x}+\frac{16z}{xy}+\frac{6}{xy}+\frac{15z^2}{xy^2}+\frac{2}{x^2z}+\frac{14}{x^2y}+\frac{2}{x^2yz}+\frac{20z}{x^2y^2}+\frac{6}{x^3yz}+\frac{15}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{6}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3347: $\left(\frac{(xy^2z+(yz+1)^2)^2}{x^2y^3z^2}, \frac{x^3y^4z^2}{(xy^2z+(yz+1)^2)^2}, \frac{x^2y^4z^3}{(xy^2z+(yz+1)^2)^2}\right)$

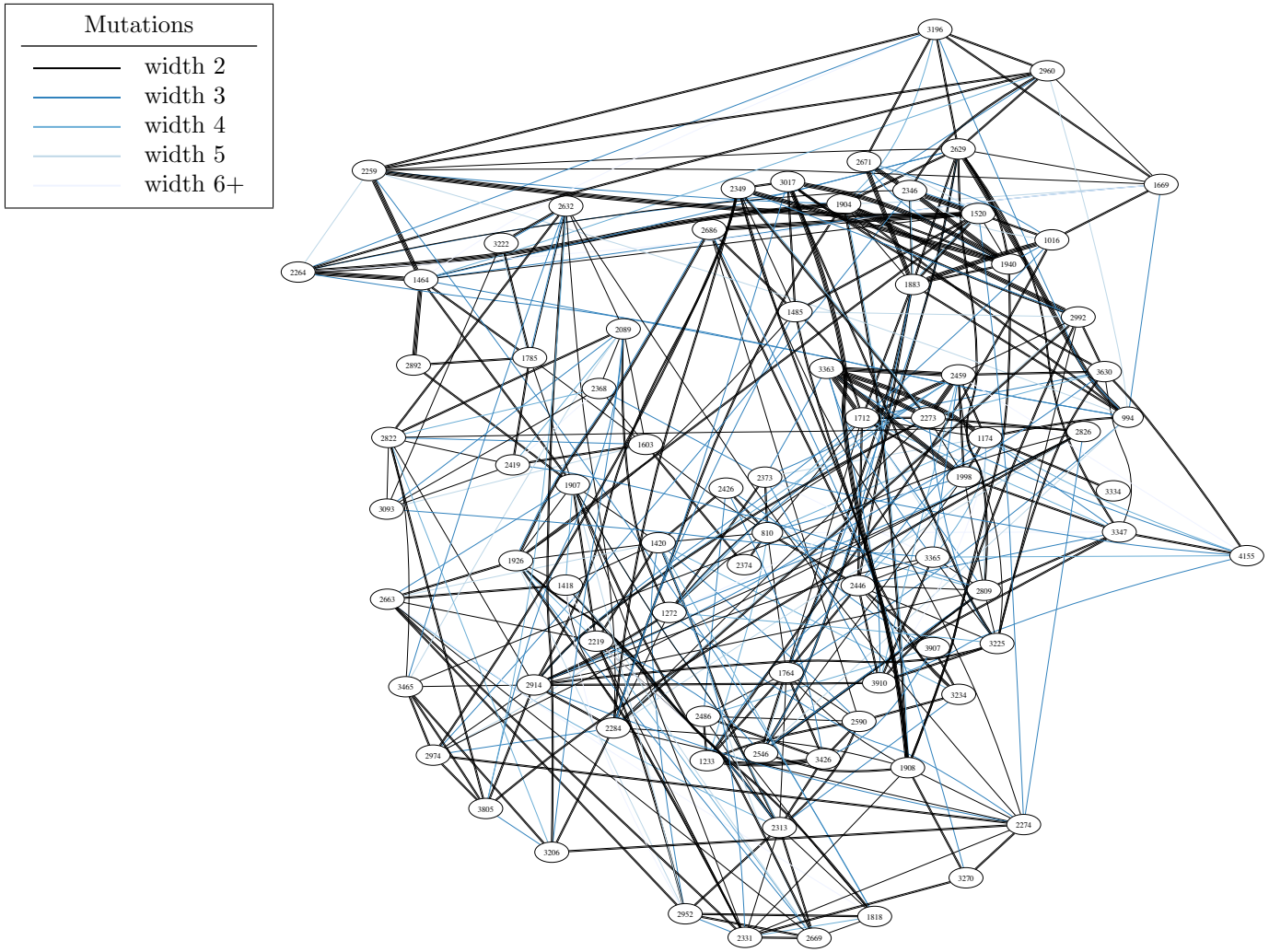


Figure 104b. All mutations between Minkowski polynomials in bucket 104

Bucket 105

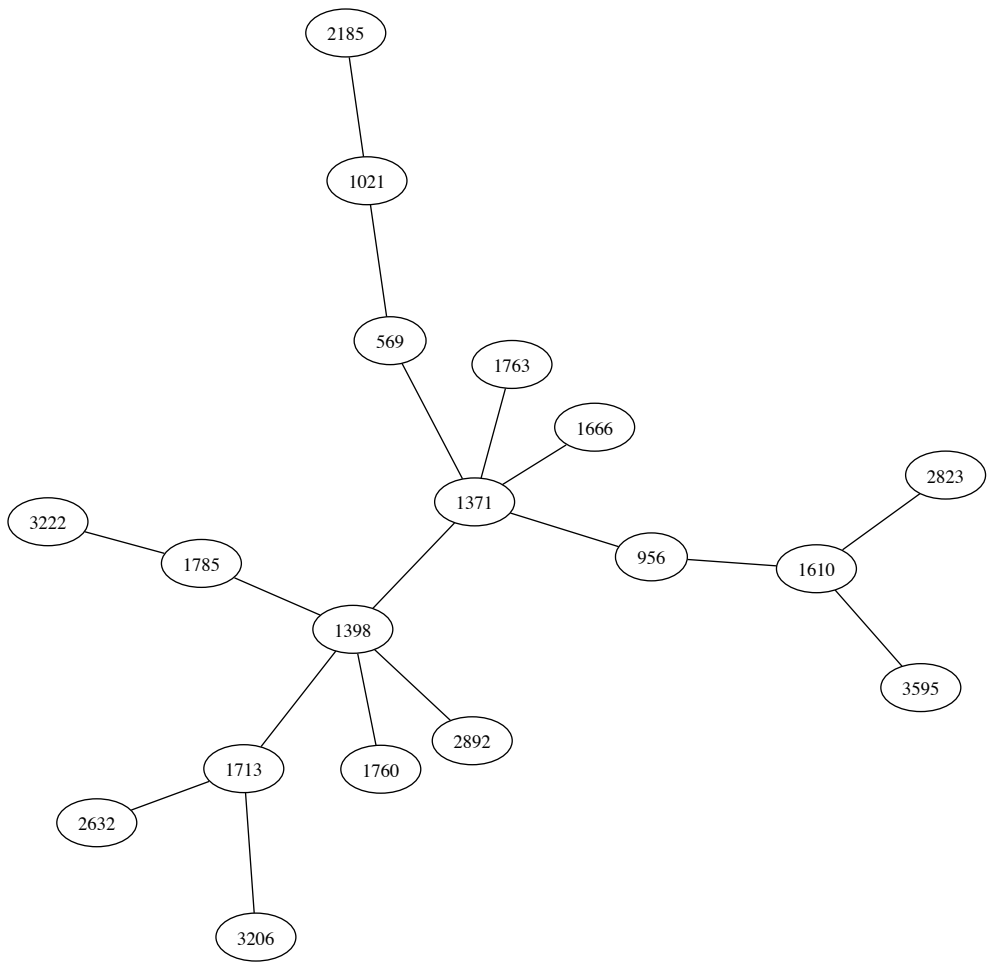


Figure 105a. Selected width-2 mutations between Minkowski polynomials in bucket 105

Table 105. Laurent polynomials and selected mutations for bucket 105.

Node	Laurent polynomial	Mutations from Figure 105a
569	$\frac{xy}{z}+x+\frac{x}{z}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	1021: $\left(\frac{x(y+1)}{y}, y, \frac{z(y+1)}{y}\right)$ 1371: $\left(\frac{(x+y)^2}{x^2y}, \frac{x}{y}, z\right)$
956	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1371: $\left(\frac{x+y}{xy}, \frac{x}{y}, z\right)$ 1610: $\left(y, \frac{y^2+z(y+1)^2}{xyz}, z\right)$
1021	$\frac{xy}{z}+x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	569: $\left(\frac{xy}{y+1}, y, \frac{xy}{z}\right)$ 2185: $\left(y, \frac{xyz}{y^2+yz+z}, z\right)$
1371	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{1}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	569: $\left(\frac{(y+1)^2}{xy}, \frac{(y+1)^2}{xy^2}, z\right)$ 956: $\left(\frac{y+1}{x}, \frac{y+1}{xy}, z\right)$ 1398: $\left(x, \frac{x}{y}, \frac{(y+1)^2}{xz}\right)$ 1666: $\left(\frac{(y+1)^2(y+z+1)}{xyz}, \frac{(y+1)^2(y+z+1)}{xy^2z}, z\right)$ 1763: $\left(\frac{xyz+(y+1)^2}{xy}, \frac{xyz+(y+1)^2}{xy^2}, \frac{x^2yz}{xyz+(y+1)^2}\right)$
1398	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1371: $\left(x, \frac{x}{y}, \frac{(x+y)^2}{xy^2z}\right)$ 1713: $\left(y, \frac{xy}{xz+y}, \frac{x^2z}{xz+y}\right)$ 1760: $\left(\frac{xy}{y+1}, y, \frac{z(y+1)}{y}\right)$ 1785: $\left(x, \frac{xyz}{xz+y}, \frac{xz^2}{xz+y}\right)$ 2892: $\left(y, \frac{xyz}{(z+1)(yz+1)}, \frac{xyz^2}{(z+1)(yz+1)}\right)$
1610	$x+y+\frac{2y}{z}+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	956: $\left(\frac{x^2+z(x+1)^2}{xyz}, x, z\right)$ 2823: $\left(\frac{x^2z}{xz+y}, y, \frac{xz+y}{x}\right)$ 3595: $\left(\frac{x^3z^2}{(xz+y)^2}, y, \frac{(xz+y)^2}{x^2z}\right)$
1666	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{4y}{xz}+\frac{3}{x}+\frac{6}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1371: $\left(\frac{(x+y)^2(x+yz+y)}{x^2y^2z}, \frac{x}{y}, z\right)$

Continued on next page

Table 105 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 105a
1713	$x+\frac{xz}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{x^2z}$	1398: $\left(y+z, x, \frac{xz}{y(y+z)}\right)$ 2632: $\left(x, y, \frac{x+1}{xz}\right)$ 3206: $\left(x, z, \frac{(x+1)^2}{x^2y}\right)$
1760	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	1398: $\left(\frac{(y+1)(xz+y+1)}{xy}, y, \frac{x^2yz}{(y+1)(xz+y+1)}\right)$
1763	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1371: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x}{y}, \frac{x^3yz}{x^2yz+(x+y)^2}\right)$
1785	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	1398: $\left(x, \frac{y(xz+y)}{xz}, \frac{xz+y}{x}\right)$ 3222: $\left(y, \frac{xy^2z^2}{(yz+1)^2}, z\right)$
2185	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	1021: $\left(\frac{y(x^2+xz+z)}{xz}, x, z\right)$
2632	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1713: $\left(x, y, \frac{x+1}{xz}\right)$
2823	$x+y+\frac{y}{z}+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	1610: $\left(\frac{xz+y}{z}, y, \frac{xz^2}{xz+y}\right)$
2892	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1398: $\left(\frac{(y+z)(xz+y)}{xz}, x, \frac{z}{y}\right)$
3206	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	1713: $\left(x, \frac{(x+1)^2}{x^2z}, y\right)$
3222	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^3z^2}$	1785: $\left(\frac{y(xz+1)^2}{x^2z^2}, x, z\right)$
3595	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{6}{x^2z}+\frac{2}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	1610: $\left(\frac{(xz+y)^2}{xz^2}, y, \frac{x^2z^3}{(xz+y)^2}\right)$

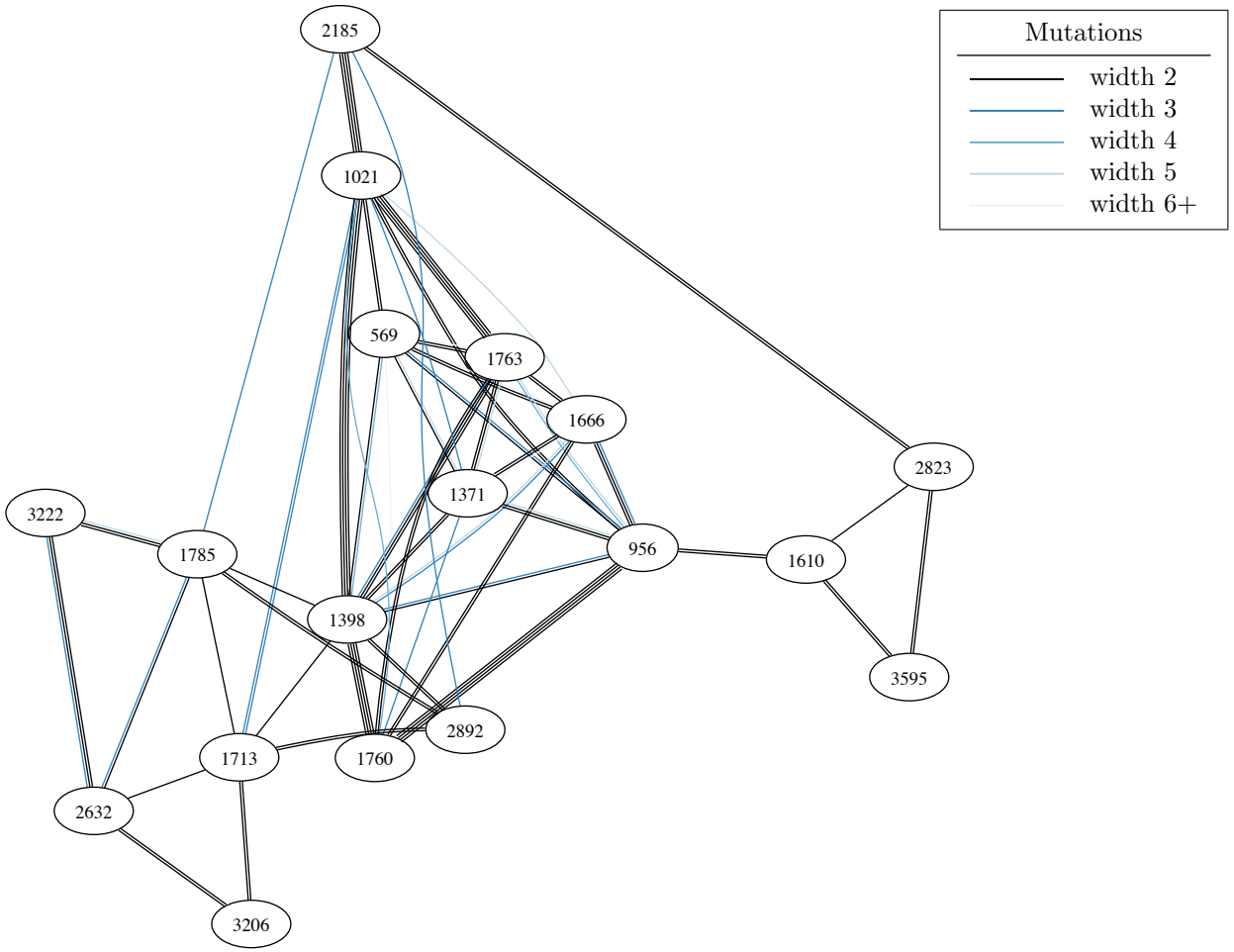
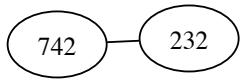
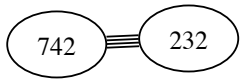


Figure 105b. All mutations between Minkowski polynomials in bucket 105

Bucket 106



(A) A spanning tree consisting of width-2 mutations



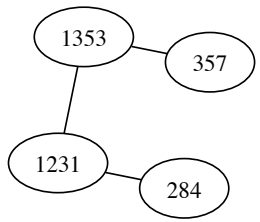
(B) All mutations are of width 2

Figure 106. Mutations between Minkowski polynomials in bucket 106

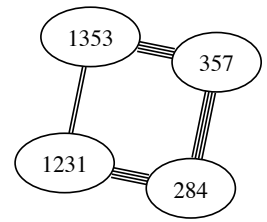
Table 106. Laurent polynomials and selected mutations for bucket 106.

Node	Laurent polynomial	Mutations from Figure 106a
232	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	$742\colon \left(\frac{x^2yz}{xyz^2+xyz+1}, \frac{x^2yz^2}{xyz^2+xyz+1}, \frac{x}{xyz^2+xyz+1}\right)$
742	$x+yz^3+3yz^2+3yz+y+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3y^2z^3}$	$232\colon \left(x+y+z, \frac{x^2}{yz(x+y+z)}, \frac{y}{x}\right)$

Bucket 107



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 107. Mutations between Minkowski polynomials in bucket 107

Table 107. Laurent polynomials and selected mutations for bucket 107.

Node	Laurent polynomial	Mutations from Figure 107a
284	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	1231: $\left(\frac{x^2z}{xz+1}, y, \frac{xz+1}{x}\right)$
357	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1353: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
1231	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	284: $\left(\frac{xz+1}{z}, y, \frac{xz^2}{xz+1}\right)$ 1353: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$
1353	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	357: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 1231: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$

Bucket 108

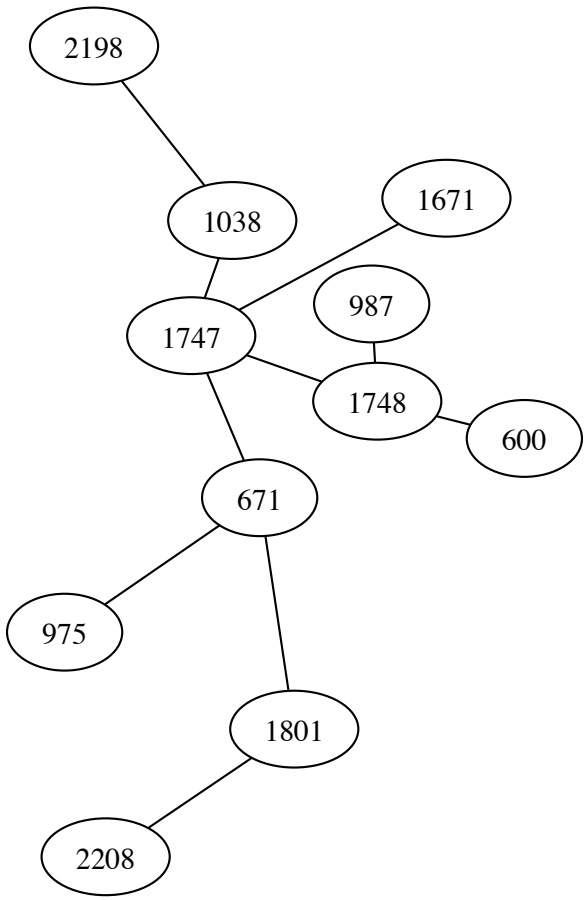


Figure 108a. Selected width-2 mutations between Minkowski polynomials in bucket 108

Table 108. Laurent polynomials and selected mutations for bucket 108.

Node	Laurent polynomial	Mutations from Figure 108a
600	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	1748: $\left(\frac{x^2z}{xz+1}, y, \frac{xz+1}{x}\right)$
671	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	975: $\left(y, \frac{yz+(y+1)^2}{xy}, \frac{1}{z}\right)$ 1747: $\left(\frac{xy}{xz+y+1}, y, \frac{x^2z}{xz+y+1}\right)$ 1801: $\left(y, \frac{x^2yz}{xyz+xz+y}, \frac{xyz+xz+y}{xy}\right)$
975	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	671: $\left(\frac{x+z(x+1)^2}{xyz}, x, \frac{1}{z}\right)$
987	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1748: $\left(\frac{(xz+1)(xyz+(y+1)^2)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+(y+1)^2)}\right)$
1038	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	1747: $\left(\frac{xy}{y+1}, y, \frac{z(y+1)}{y}\right)$ 2198: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$
1671	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	1747: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$
1747	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{4}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	671: $\left(\frac{xy+x+yz}{y}, y, \frac{xy}{z(xy+x+yz)}\right)$ 1038: $\left(\frac{x(y+1)}{y}, y, \frac{yz}{y+1}\right)$ 1671: $\left(x, y, \frac{(y+1)^2}{x^2yz}\right)$ 1748: $\left(x, y, \frac{y+1}{x^2z}\right)$
1748	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	600: $\left(\frac{xz+1}{z}, y, \frac{xz^2}{xz+1}\right)$ 987: $\left(\frac{(xz+1)(xyz+(y+1)^2)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+(y+1)^2)}\right)$ 1747: $\left(x, y, \frac{y+1}{x^2z}\right)$
1801	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	671: $\left(\frac{xyz+x+yz}{xz}, x, \frac{xyz^2}{xyz+x+yz}\right)$ 2208: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$
2198	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	1038: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
2208	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1801: $\left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$

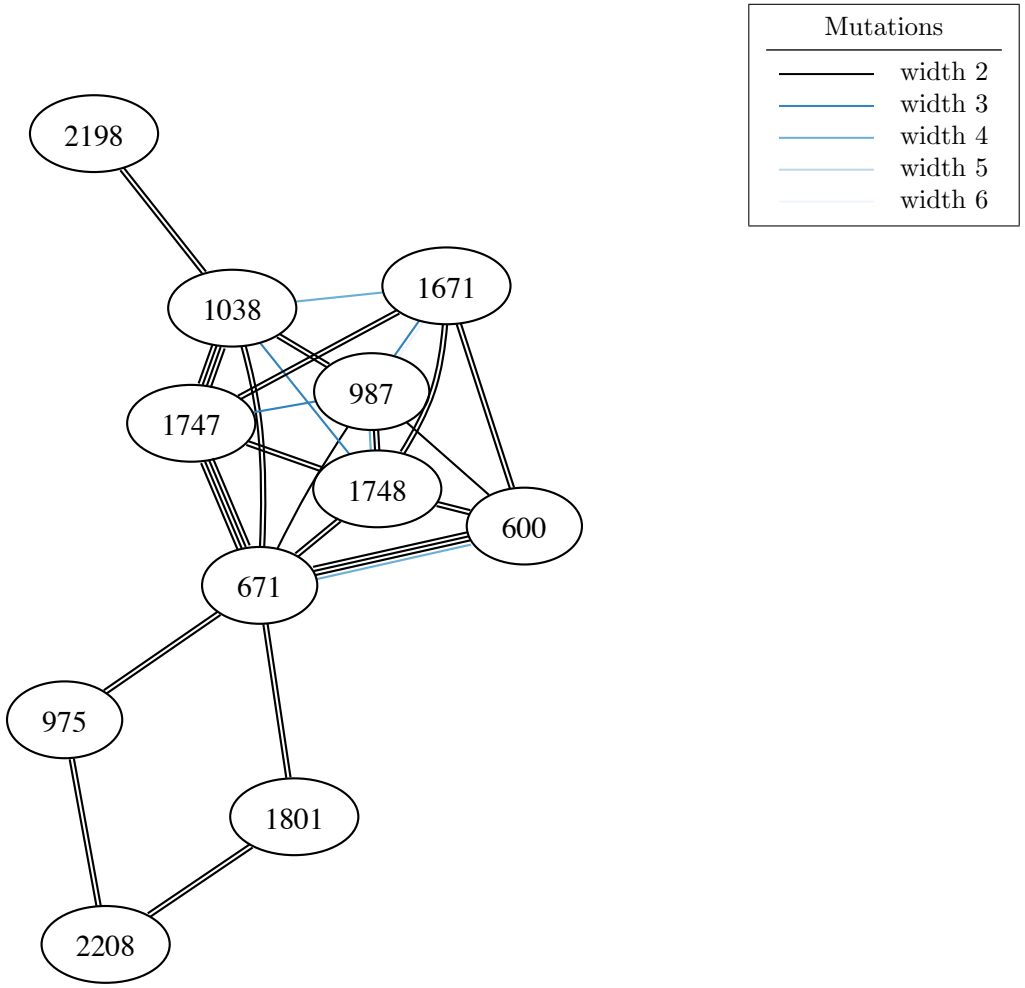


Figure 108b. All mutations between Minkowski polynomials in bucket 108

Bucket 109

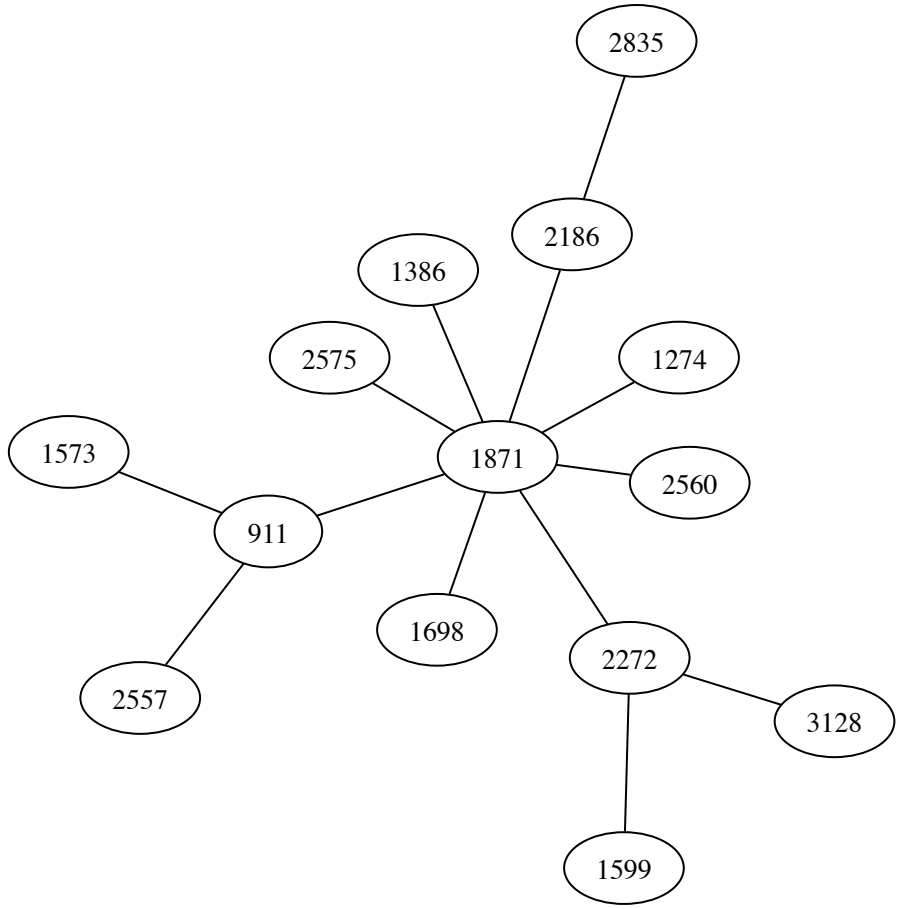


Figure 109a. Selected width-2 mutations between Minkowski polynomials in bucket 109

Table 109. Laurent polynomials and selected mutations for bucket 109.

Node	Laurent polynomial	Mutations from Figure 109a
911	$x+\frac{x}{z}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	1573: $\left(\frac{(y+z+1)^2}{xy},\frac{(y+z+1)^2}{xz},\frac{(y+z+1)^2}{xyz}\right)$ 1871: $\left(\frac{x+y}{yz},x,y\right)$ 2557: $\left(y,z,\frac{xyz}{yz+1}\right)$
1274	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	1871: $\left(\frac{x(yz+1)}{yz},y,z\right)$
1386	$x+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{z}{x^2}$	1871: $\left(x,\frac{yz+1}{y},\frac{x}{yz}\right)$
1573	$x+y+z+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	911: $\left(\frac{(x+y+z)^2}{xyz},\frac{y}{z},\frac{x}{z}\right)$
1599	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2272: $\left(z,\frac{xz+x+yz}{xyz},\frac{yz}{x}\right)$
1698	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	1871: $\left(\frac{x(yz+1)}{yz},\frac{yz+1}{z},\frac{yz^2}{yz+1}\right)$
1871	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	911: $\left(y,z,\frac{y+z}{xz}\right)$ 1274: $\left(\frac{xyz}{yz+1},y,z\right)$ 1386: $\left(y,\frac{x+z}{xz},\frac{x^2}{x+z}\right)$ 1698: $\left(\frac{xyz}{yz+1},\frac{y^2z}{yz+1},\frac{yz+1}{y}\right)$ 2186: $\left(y,\frac{(y+z)(yz+y+z)}{xyz},\frac{xy^2}{(y+z)(yz+y+z)}\right)$ 2272: $\left(\frac{yz^2}{x(z+1)},z,y\right)$ 2560: $\left(y,z,\frac{(y+z)(yz+y+1)}{xyz^2}\right)$ 2575: $\left(\frac{xy^2z}{(y+1)(yz+1)},y,z\right)$
2186	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	1871: $\left(\frac{(yz+1)(x+yz+1)}{y^2z},x,\frac{x}{yz}\right)$ 2835: $\left(x,\frac{(yz+1)^2}{y^2z},\frac{(yz+1)^2}{y^3z^2}\right)$
2272	$x+\frac{x}{z}+\frac{2x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2z^2}+\frac{x}{y^2z^3}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{1}{x}$	1599: $\left(\frac{x+z+1}{yz},\frac{x+z+1}{xy},x\right)$ 1871: $\left(\frac{y^2z}{x(y+1)},z,y\right)$ 3128: $\left(\frac{(y+z+1)(yz+1)}{xy^2z},\frac{(y+z+1)(yz+1)}{xyz^2},z\right)$

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Table 109 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 109a
2557	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	911: $\left(\frac{z(xy+1)}{xy}, x, y\right)$
2560	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1871: $\left(\frac{(x+y)(xy+x+1)}{xy^2z}, x, y\right)$
2575	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	1871: $\left(\frac{x(y+1)(yz+1)}{y^2z}, y, z\right)$
2835	$x+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{3}{xyz}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^3}$	2186: $\left(x, \frac{(y+z)^2}{y^2z}, \frac{y^3}{(y+z)^2}\right)$
3128	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2272: $\left(\frac{(x+yz^2)(xz+x+yz)}{xy^2z^3}, \frac{yz}{x}, z\right)$

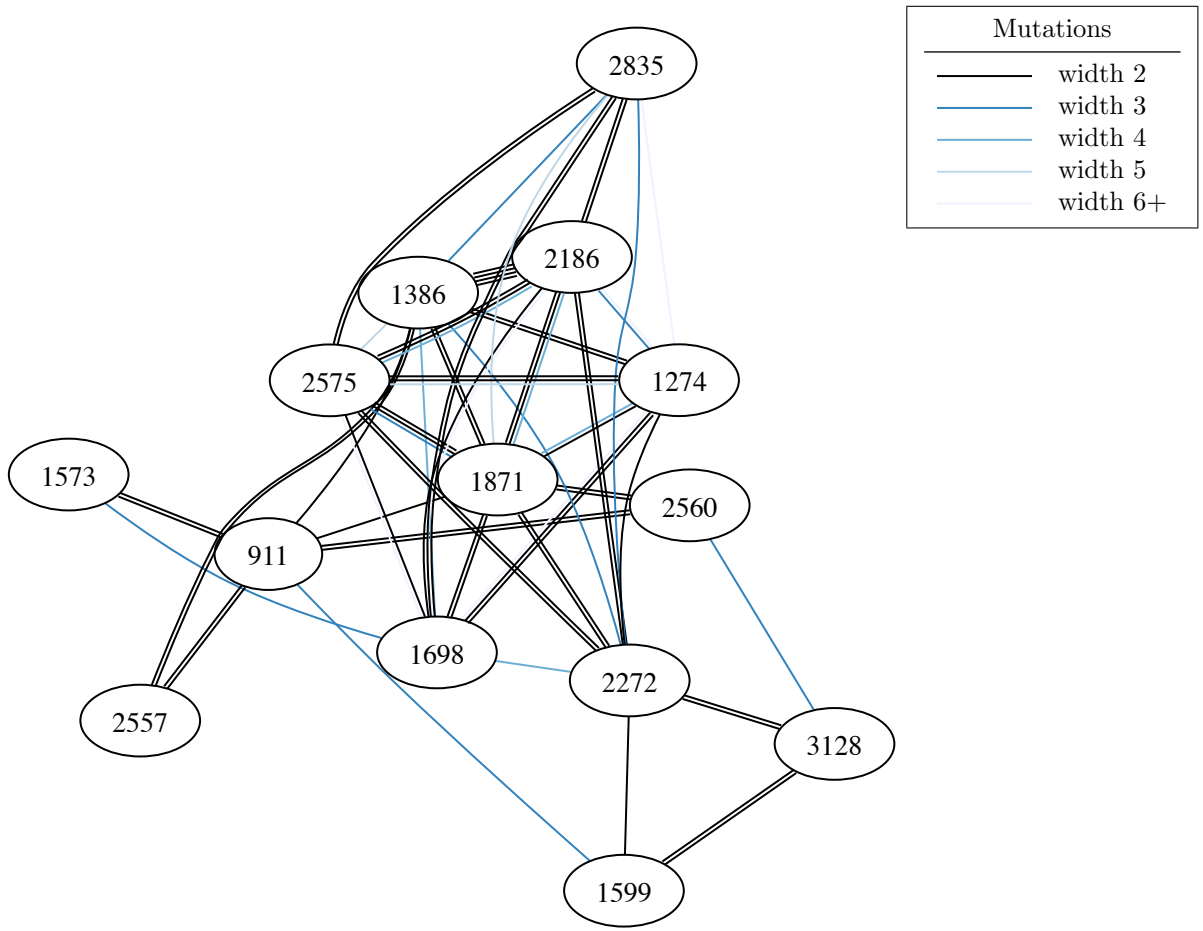

Figure 109b. All mutations between Minkowski polynomials in bucket 109

Bucket 110

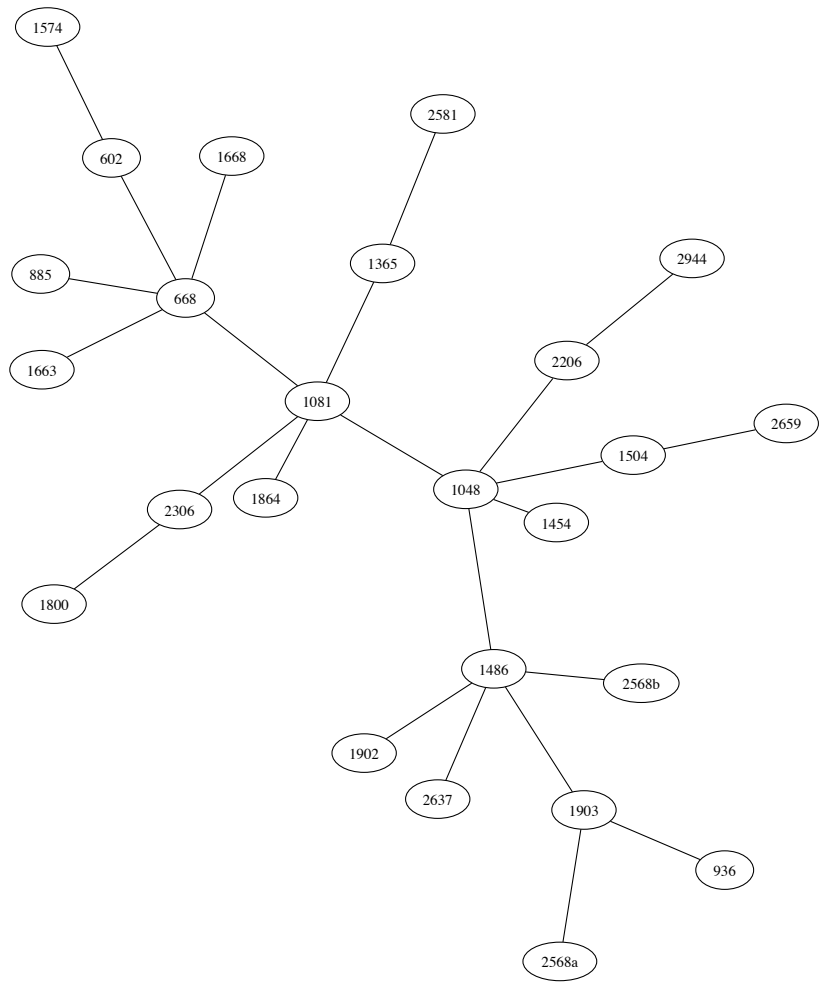

Figure 110a. Selected width-2 mutations between Minkowski polynomials in bucket 110

Table 110. Laurent polynomials and selected mutations for bucket 110.

Node	Laurent polynomial	Mutations from Figure 110a
602	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	$668\colon \left(\frac{y(x+1)}{x}, x, z\right)$ $1574\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$
668	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$602\colon \left(y, \frac{xy}{y+1}, z\right)$ $885\colon \left(\frac{x}{y}, \frac{xyz}{yz+1}, \frac{yz+1}{y}\right)$ $1081\colon \left(\frac{x+1}{y}, x, z\right)$ $1663\colon \left(y, \frac{x^2yz}{xyz+xz+y^2}, \frac{xy^2}{xyz+xz+y^2}\right)$ $1668\colon \left(y, \frac{x^2yz}{(y+1)(xz+y)}, \frac{(y+1)(xz+y)}{xy}\right)$
885	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	$668\colon \left(\frac{x+yz}{z}, \frac{x+yz}{xz}, \frac{yz^2}{x+yz}\right)$
936	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	$1903\colon \left(x, \frac{xy}{x+1}, \frac{z(x+1)}{y}\right)$
1048	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$1081\colon \left(\frac{y+1}{x}, y, \frac{yz}{y+1}\right)$ $1454\colon \left(y, \frac{xy}{y+1}, z\right)$ $1486\colon \left(\frac{yz+z+1}{xz}, y, \frac{x}{yz+z+1}\right)$ $1504\colon \left(x, y, \frac{yz}{y+1}\right)$ $2206\colon \left(\frac{(y+1)(yz+z+1)}{xyz}, y, \frac{xy}{(y+1)(yz+z+1)}\right)$
1081	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$668\colon \left(y, \frac{y+1}{x}, z\right)$ $1048\colon \left(\frac{y+1}{x}, y, \frac{z(y+1)}{y}\right)$ $1365\colon \left(y, \frac{(y+1)(yz+y+z)}{xyz}, z\right)$ $1864\colon \left(\frac{(y+1)^2}{xy}, y, \frac{1}{z}\right)$ $2306\colon \left(y, \frac{y^2+z(y+1)^2}{xyz}, \frac{xy^2}{y^2+z(y+1)^2}\right)$
1365	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$1081\colon \left(\frac{(x+1)(xz+x+z)}{xyz}, x, z\right)$ $2581\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$

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Table 110 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 110a
1454	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	$1048\colon \left(\frac{y(x+1)}{x}, x, z\right)$
1486	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1048\colon \left(\frac{xz+y+1}{x}, y, \frac{1}{xz}\right)$ $1902\colon \left(x, y, \frac{xz}{x+y+1}\right)$ $1903\colon \left(y, \frac{xz+y+1}{x}, \frac{x^2z}{xz+y+1}\right)$ $2568b\colon \left(x, \frac{xy^2z}{xyz+yz+1}, \frac{xyz+yz+1}{xy}\right)$ $2637\colon \left(y, \frac{1+z(y+1)^2}{xyz}, z\right)$
1504	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1048\colon \left(x, y, \frac{z(y+1)}{y}\right)$ $2659\colon \left(y, \frac{xyz+(y+1)^2}{xy}, \frac{x^2yz}{xyz+(y+1)^2}\right)$
1574	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	$602\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$
1663	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	$668\colon \left(\frac{xy+xz+y}{x}, x, \frac{x^2z}{y(xy+xz+y)}\right)$
1668	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	$668\colon \left(\frac{(x+1)(x+yz)}{xz}, x, \frac{xyz^2}{(x+1)(x+yz)}\right)$
1800	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$2306\colon \left(x, y, \frac{z(y+1)}{y}\right)$
1864	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$1081\colon \left(\frac{(y+1)^2}{xy}, y, \frac{1}{z}\right)$
1902	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$1486\colon \left(x, y, \frac{z(x+y+1)}{x}\right)$
1903	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$936\colon \left(x, \frac{y(x+1)}{x}, \frac{1}{xyz}\right)$ $1486\colon \left(\frac{x+yz+1}{y}, x, \frac{y^2z}{x+yz+1}\right)$ $2568a\colon \left(x, \frac{(x+1)(xyz+(yz+1)^2)}{xy^2z}, \frac{yz}{x}\right)$
2206	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$1048\colon \left(\frac{(y+1)(xz+y+1)}{xy}, y, \frac{1}{xz}\right)$ $2944\colon \left(x, y, \frac{(y+1)^2}{xy^2z}\right)$

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Table 110 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 110a
2306	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$1081\colon \left(\frac{xyz+(x+1)^2}{xy}, x, \frac{x}{yz}\right)$ $1800\colon \left(x, y, \frac{yz}{y+1}\right)$
2568a	$x+\frac{x}{y}+y+z+\frac{4}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{5}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	$1903\colon \left(x, \frac{(x+1)(x^2z+(xz+1)^2)}{x^2yz}, \frac{x^3yz^2}{(x+1)(x^2z+(xz+1)^2)}\right)$
2568b	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	$1486\colon \left(x, \frac{xyz+yz+1}{xz}, \frac{x}{y(xyz+yz+1)}\right)$
2581	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	$1365\colon \left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$
2637	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	$1486\colon \left(\frac{1+z(x+1)^2}{xyz}, x, z\right)$
2659	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	$1504\colon \left(\frac{(yz+1)(x+1)}{xz}, x, \frac{xyz^2}{(yz+1)(x+1)}\right)$
2944	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	$2206\colon \left(x, y, \frac{(y+1)^2}{xy^2z}\right)$

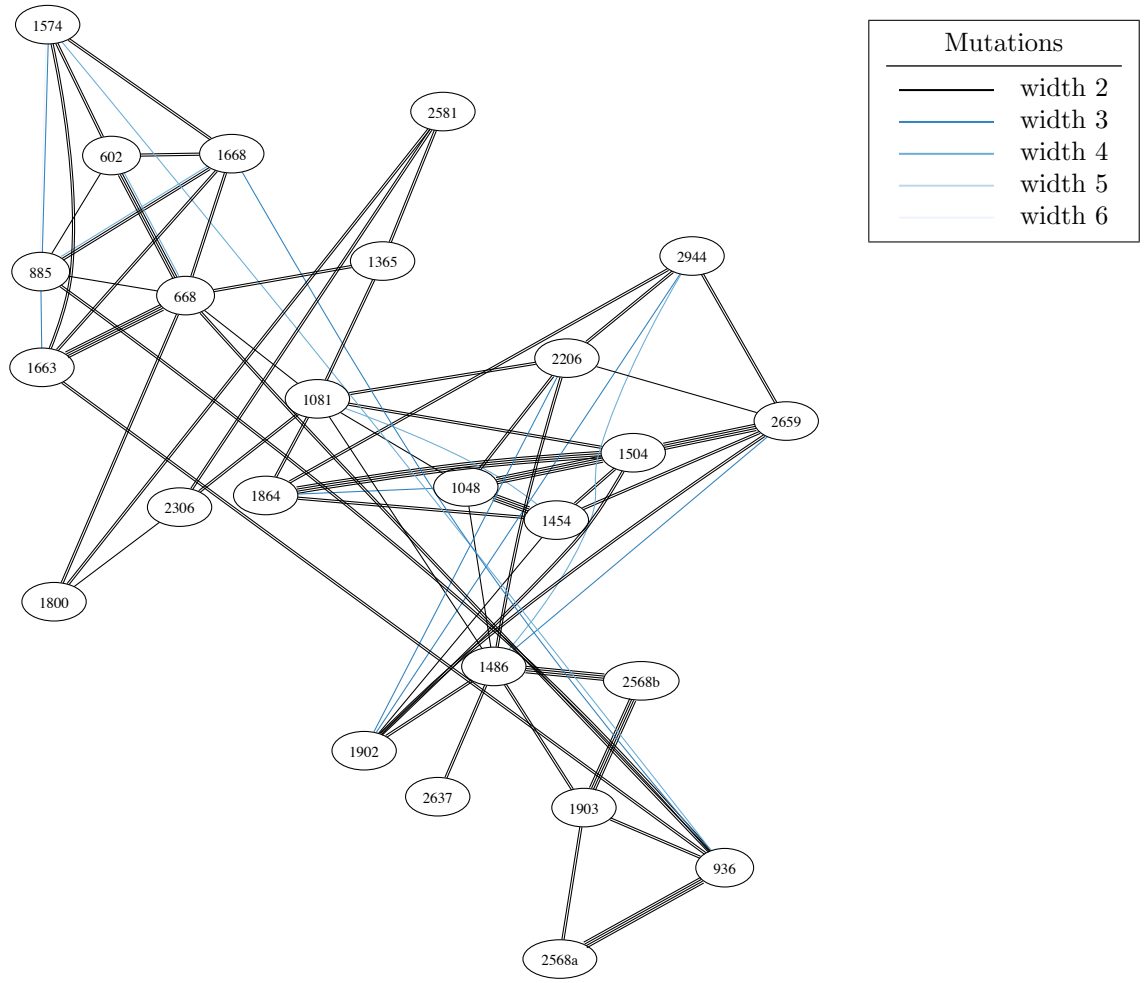

FIGURE 110B. All mutations between Minkowski polynomials in bucket 110

Bucket 111

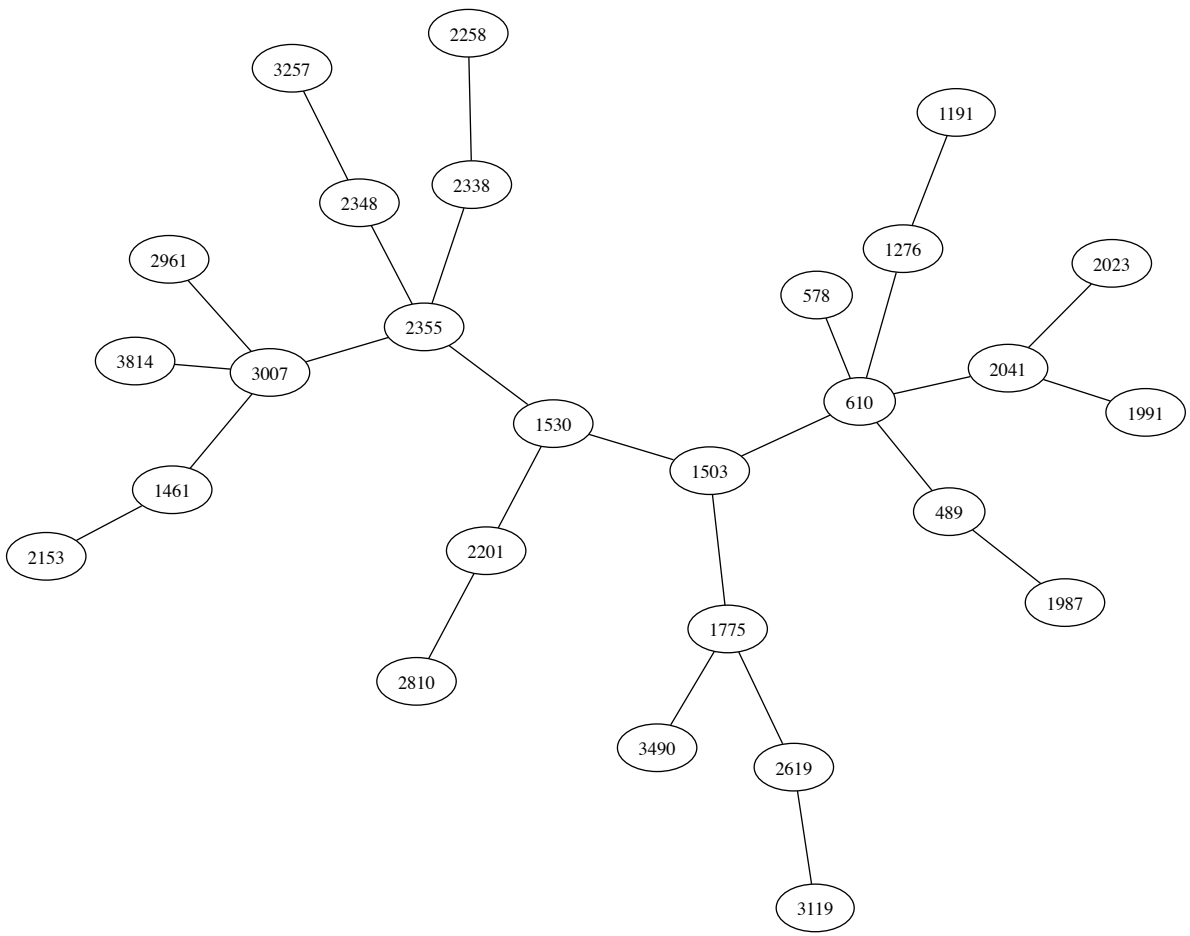

Figure 111a. Selected width-2 mutations between Minkowski polynomials in bucket 111

Table 111. Laurent polynomials and selected mutations for bucket 111.

Node	Laurent polynomial	Mutations from Figure 111a
489	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	610: $\left(x(xz+1), \frac{y(xz+1)}{xz}, \frac{1}{y(xz+1)}\right)$ 1987: $\left(\frac{xyz^2+(xyz+1)^2}{x^2yz^2}, \frac{x^3y^2z^2}{xyz^2+(xyz+1)^2}, \frac{1}{xyz}\right)$
578	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{1}{x}$	610: $\left(x(xz+1), \frac{1}{y}, \frac{1}{xyz}\right)$
610	$x^2z+2xz+x+y+z+\frac{1}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xyz}$	489: $\left(\frac{yz+1}{y}, \frac{yz+1}{xyz}, \frac{y^2z}{yz+1}\right)$ 578: $\left(\frac{xz}{y+z}, \frac{1}{y}, \frac{y(y+z)}{xz^2}\right)$ 1276: $\left(\frac{xyz}{xz+1}, \frac{x}{xz+1}, \frac{xz+1}{y^2z}\right)$ 1503: $\left(\frac{1}{z}, \frac{y}{x}, \frac{z(x+y)}{xy}\right)$ 2041: $\left(\frac{x^2y}{(xy+1)(xyz+1)}, \frac{x^2yz}{(xy+1)(xyz+1)}, \frac{z(xy+1)(xyz+1)}{x}\right)$
1191	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{y}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1276: $\left(x, y, \frac{z(x+y)}{x}\right)$
1276	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	610: $\left(x^2z+y, \frac{x^2z+y}{xz}, \frac{x^2z}{y(x^2z+y)}\right)$ 1191: $\left(x, y, \frac{xz}{x+y}\right)$
1461	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2153: $\left(\frac{x^2z}{xz+y}, \frac{xy}{xz+y}, \frac{1}{y}\right)$ 3007: $\left(x, \frac{(z+1)^2}{yz}, z\right)$
1503	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	610: $\left(\frac{y+1}{xyz}, \frac{y+1}{xz}, \frac{1}{x}\right)$ 1530: $\left(\frac{x(y+1)}{y}, \frac{x(y+1)}{yz}, \frac{1}{y}\right)$ 1775: $\left(y, x, \frac{xy+x+y}{xyz}\right)$
1530	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	1503: $\left(\frac{x}{z+1}, \frac{1}{z}, \frac{x}{y}\right)$ 2201: $\left(\frac{(z+1)(y+1)}{xy}, z, \frac{1}{y}\right)$ 2355: $\left(\frac{z}{y}, \frac{xz}{yz+y+z}, z\right)$

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Table 111 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 111a
1775	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}$	1503: $\left(y, x, \frac{xy+x+y}{xyz}\right)$ 2619: $\left(\frac{x^2yz}{xyz+y+1}, y, \frac{xyz+y+1}{xy}\right)$ 3490: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
1987	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	489: $\left(\frac{1+xy(z+1)^2}{x}, \frac{x^2y}{1+xy(z+1)^2}, \frac{1}{xyz}\right)$
1991	$xz^2+2xz+x+y+2z+\frac{z^2}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{2}{x^2z}+\frac{6}{x^2y}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{1}{x^4yz^2}$	2041: $\left(x, \frac{(xyz+1)^2}{x^2y}, \frac{1}{x^2yz}\right)$
2023	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{2z}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	2041: $\left(x, \frac{z(xyz+1)}{x}, \frac{xyz+1}{x^2y}\right)$
2041	$xy^2z^2+2xyz+x+yz^2+2yz+y+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	610: $\left(\frac{(xz+1)(x^2z+y)}{xz}, \frac{x^3z^2}{y(xz+1)(x^2z+y)}, \frac{y}{x}\right)$ 1991: $\left(x, \frac{(xz+1)^2}{x^4yz^2}, \frac{x^2yz}{(xz+1)^2}\right)$ 2023: $\left(x, \frac{y+z}{x^2z^2}, \frac{xyz}{y+z}\right)$
2153	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	1461: $\left(x+y, \frac{1}{z}, \frac{x}{yz(x+y)}\right)$
2201	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1530: $\left(\frac{(z+1)(y+1)}{x}, \frac{1}{z}, y\right)$ 2810: $\left(x, \frac{xz+(z+1)^2}{xyz}, \frac{1}{z}\right)$
2258	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	2338: $\left(x, y, \frac{xz}{x+1}\right)$
2338	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2258: $\left(x, y, \frac{z(x+1)}{x}\right)$ 2355: $\left(x, y+z, \frac{z}{y}\right)$
2348	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2355: $\left(x, \frac{xz}{x+1}, \frac{xy}{x+1}\right)$ 3257: $\left(\frac{x^2z}{xz+y+1}, \frac{xy}{xz+y+1}, \frac{x}{xz+y+1}\right)$

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Table 111 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 111a
2355	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1530: $\left(\frac{y(x+z+1)}{x}, \frac{z}{x}, z\right)$ 2338: $\left(x, \frac{y}{z+1}, \frac{yz}{z+1}\right)$ 2348: $\left(x, \frac{z(x+1)}{x}, \frac{y(x+1)}{x}\right)$ 3007: $\left(x, \frac{xy}{(z+1)(x+1)}, \frac{xyz}{(z+1)(x+1)}\right)$
2619	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	1775: $\left(\frac{xyz+y+1}{yz}, y, \frac{xyz^2}{xyz+y+1}\right)$ 3119: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
2810	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2201: $\left(x, \frac{xz+(z+1)^2}{xyz}, \frac{1}{z}\right)$
2961	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{2}{x^2y}+\frac{z}{x^3y}$	3007: $\left(x, y, \frac{x}{z(x+1)}\right)$
3007	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{2}{x^2y}+\frac{1}{x^2yz}$	1461: $\left(x, \frac{(z+1)^2}{yz}, z\right)$ 2355: $\left(x, \frac{(y+z)(x+1)}{x}, \frac{z}{y}\right)$ 2961: $\left(x, y, \frac{x}{z(x+1)}\right)$ 3814: $\left(\frac{(xz+1)(xyz+(y+1)^2)}{x^2yz}, \frac{x^3yz^2}{(xz+1)(xyz+(y+1)^2)}, y\right)$
3119	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{4}{x^2z}+\frac{1}{x^2y}+\frac{6}{x^2yz}+\frac{1}{x^3z^2}+\frac{3}{x^3yz}+\frac{3}{x^3yz^2}+\frac{3}{x^4yz^2}+\frac{1}{x^5yz^3}$	2619: $\left(x, \frac{(x^2z+xz+1)^2}{x^3yz^2}, z\right)$
3257	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{5}{x^2z}+\frac{1}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2348: $\left(x+y+z, \frac{y}{z}, \frac{x}{z(x+y+z)}\right)$
3490	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1775: $\left(\frac{(y+1)(xyz+y+1)}{y^2z}, y, \frac{xy^2z^2}{(y+1)(xyz+y+1)}\right)$
3814	$x+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{10}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3007: $\left(\frac{(xy+1)(xyz+(z+1)^2)}{x^2yz}, z, \frac{x^3y^2z}{(xy+1)(xyz+(z+1)^2)}\right)$

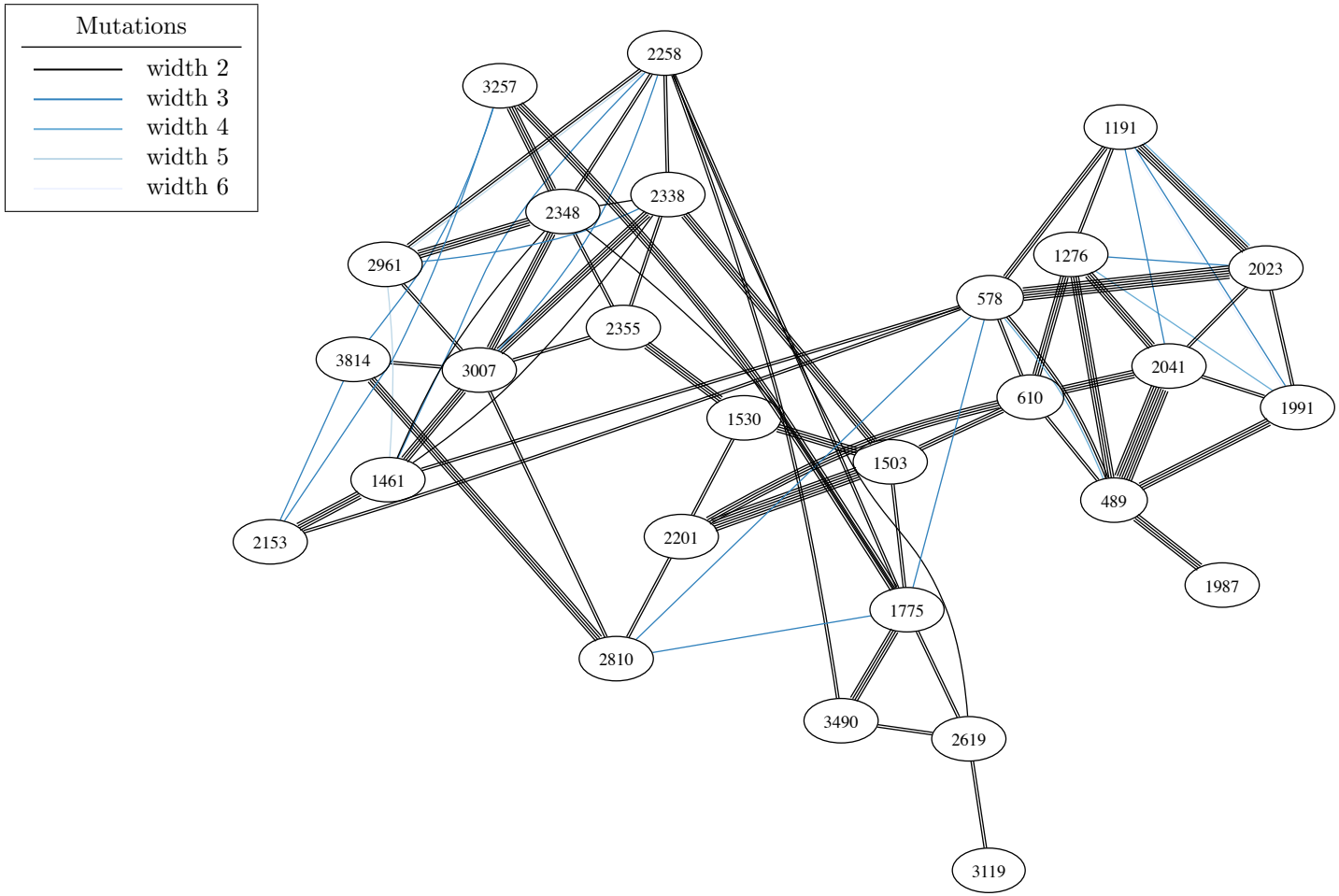

FIGURE 111B. All mutations between Minkowski polynomials in bucket 111

Bucket 112

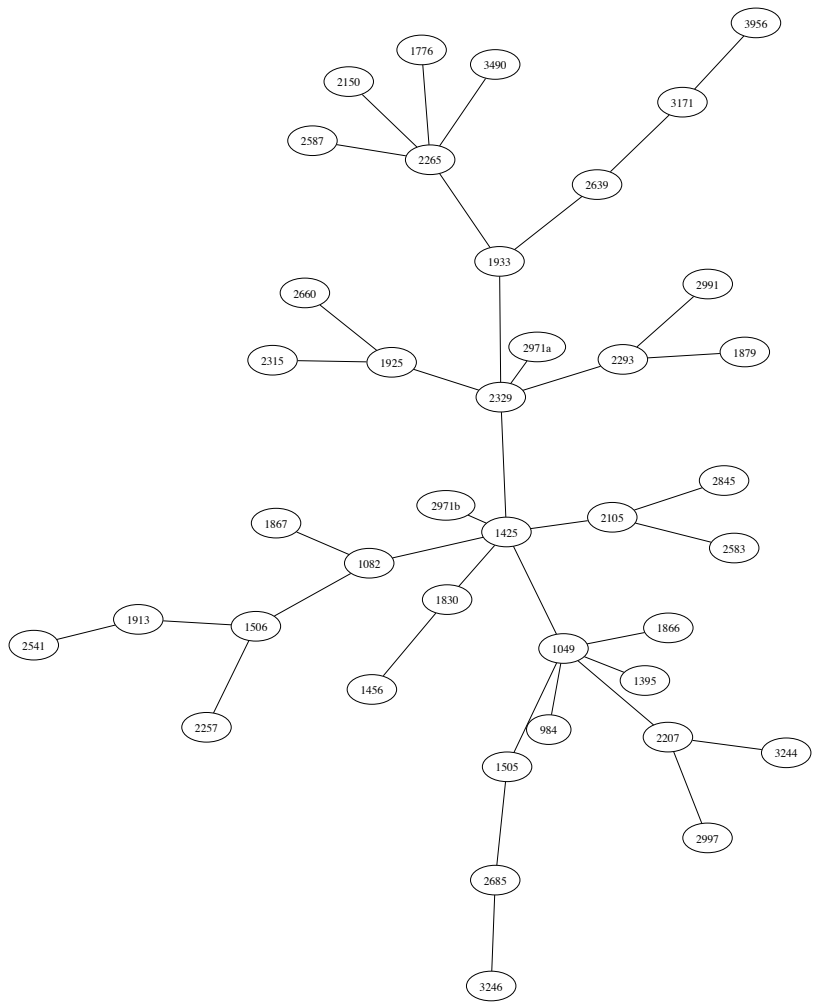

Figure 112a. Selected width-2 mutations between Minkowski polynomials in bucket 112

Table 112. Laurent polynomials and selected mutations for bucket 112.

Node	Laurent polynomial	Mutations from Figure 112a
984	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	$1049\colon \left(\frac{x(y+1)}{y}, y, \frac{z(y+1)}{y}\right)$
1049	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$984\colon \left(\frac{xy}{y+1}, y, \frac{yz}{y+1}\right)$ $1395\colon \left(\frac{xz}{z+1}, y, \frac{x}{z+1}\right)$ $1425\colon \left(\frac{x}{y}, \frac{xz+x+yz}{xyz}, \frac{xz+x+yz}{xy}\right)$ $1505\colon \left(\frac{x+1}{y}, x, \frac{1}{z}\right)$ $1866\colon \left(\frac{(y+1)^2}{xy}, y, z\right)$ $2207\colon \left(\frac{xyz}{(z+1)(y+1)}, y, \frac{xy}{(z+1)(y+1)}\right)$
1082	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	$1425\colon \left(\frac{x}{y}, \frac{xz+x+y}{xy}, \frac{xz+x+y}{xyz}\right)$ $1506\colon \left(x, \frac{x+1}{y}, z\right)$ $1867\colon \left(y, \frac{(y+1)^2}{xy}, z\right)$
1395	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	$1049\colon \left(x+z, y, \frac{x}{z}\right)$
1425	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	$1049\colon \left(\frac{xy+xz+z}{yz}, \frac{xy+xz+z}{xyz}, \frac{z}{y}\right)$ $1082\colon \left(\frac{xy+xz+z}{yz}, \frac{xy+xz+z}{xyz}, \frac{y}{z}\right)$ $1830\colon \left(x, y, \frac{xyz}{xy+x+y}\right)$ $2105\colon \left(\frac{(yz+y+1)(yz+y+z)}{xyz}, \frac{(yz+y+1)(yz+y+z)}{xy^2z}, z\right)$ $2329\colon \left(x, \frac{xy}{x+1}, z\right)$ $2971b\colon \left(y, \frac{xy^2}{(y+1)^2}, z\right)$
1456	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	$1830\colon \left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x}{y}, \frac{x^2yz+(x+y)^2}{x^2y^2z}\right)$
1505	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	$1049\colon \left(y, \frac{y+1}{x}, \frac{1}{z}\right)$ $2685\colon \left(\frac{y+z(y+1)^2}{xyz}, y, z\right)$

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Table 112 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 112a
1506	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1082: $\left(x, \frac{x+1}{y}, z\right)$ 1913: $\left(\frac{xz}{z+1}, y, z\right)$ 2257: $\left(\frac{xyz}{(z+1)(y+1)}, y, z\right)$
1776	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2265: $\left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$
1830	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1425: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 1456: $\left(\frac{xy^2+z(y+1)^2}{xyz}, \frac{xy^2+z(y+1)^2}{xy^2z}, \frac{x^2y^2}{xy^2+z(y+1)^2}\right)$
1866	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1049: $\left(\frac{(y+1)^2}{xy}, y, z\right)$
1867	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1082: $\left(\frac{(x+1)^2}{xy}, x, z\right)$
1879	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	2293: $\left(y, \frac{yz+(y+1)^2}{xy}, z\right)$
1913	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1506: $\left(\frac{x(z+1)}{z}, y, z\right)$ 2541: $\left(y, \frac{(y+1)(yz+z+1)}{xyz}, z\right)$
1925	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2315: $\left(x, y, \frac{xyz}{(y+1)(x+1)}\right)$ 2329: $\left(y, \frac{y+z+1}{x}, z\right)$ 2660: $\left(\frac{(y+z+1)(yz+y+z)}{xyz}, y, z\right)$
1933	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2265: $\left(x, y, \frac{x+y+1}{xyz}\right)$ 2329: $\left(y, \frac{yz+z+1}{xz}, \frac{x}{yz+z+1}\right)$ 2639: $\left(\frac{(yz+z+1)(yz+y+1)}{xyz}, y, z\right)$
2105	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1425: $\left(\frac{(xz+x+y)(xz+x+yz)}{x^2yz}, \frac{x}{y}, z\right)$ 2583: $\left(x, y, \frac{z(y+1)}{y}\right)$ 2845: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$

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Table 112 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 112a
2150	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	$2265\colon \left(x, \frac{(x+1)^2}{xy}, z\right)$
2207	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$1049\colon \left(\frac{(y+1)(x+z)}{y}, y, \frac{x}{z}\right)$ $2997\colon \left(x, y, \frac{(y+1)^2}{xyz}\right)$ $3244\colon \left(x, y, \frac{xyz}{xy+y+1}\right)$
2257	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$1506\colon \left(\frac{x(z+1)(y+1)}{yz}, y, z\right)$
2265	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$1776\colon \left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$ $1933\colon \left(x, y, \frac{x+y+1}{xyz}\right)$ $2150\colon \left(x, \frac{(x+1)^2}{xy}, z\right)$ $2587\colon \left(\frac{xy+z(y+1)^2}{xyz}, y, \frac{x^2y}{xy+z(y+1)^2}\right)$ $3490\colon \left(\frac{(xz+1)(xyz+(y+1)^2)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+(y+1)^2)}\right)$
2293	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	$1879\colon \left(\frac{xz+(x+1)^2}{xy}, x, z\right)$ $2329\colon \left(x, y, \frac{z(y+1)}{y}\right)$ $2991\colon \left(\frac{(yz+1)(yz+(y+1)^2)}{xy^2z}, y, z\right)$
2315	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	$1925\colon \left(x, y, \frac{z(y+1)(x+1)}{xy}\right)$
2329	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	$1425\colon \left(x, \frac{y(x+1)}{x}, z\right)$ $1925\colon \left(\frac{x+z+1}{y}, x, z\right)$ $1933\colon \left(\frac{x+yz+1}{y}, x, \frac{1}{yz}\right)$ $2293\colon \left(x, y, \frac{yz}{y+1}\right)$ $2971a\colon \left(\frac{(y+z+1)(yz+z+1)}{xyz}, y, z\right)$
2541	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	$1913\colon \left(\frac{(x+1)(xz+z+1)}{xyz}, x, z\right)$
2583	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$2105\colon \left(x, y, \frac{yz}{y+1}\right)$

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Table 112 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 112a
2587	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	2265: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{xyz+(y+1)^2}{x^2yz}\right)$
2639	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1933: $\left(\frac{(yz+z+1)(yz+y+1)}{xyz}, y, z\right)$ 3171: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$
2660	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1925: $\left(\frac{(y+z+1)(yz+y+z)}{xyz}, y, z\right)$
2685	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1505: $\left(\frac{y+z(y+1)^2}{xyz}, y, z\right)$ 3246: $\left(x, y, \frac{xy^2}{z(y+1)(xy+y+1)}\right)$
2845	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	2105: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
2971a	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2329: $\left(\frac{(y+z+1)(yz+z+1)}{xyz}, y, z\right)$
2971b	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	1425: $\left(\frac{y(x+1)^2}{x^2}, x, z\right)$
2991	$x+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	2293: $\left(\frac{(yz+1)(yz+(y+1)^2)}{xy^2z}, y, z\right)$
2997	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2207: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
3171	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	2639: $\left(x, y, \frac{xy+(y+1)^2}{xy^2z}\right)$ 3956: $\left(\frac{(xyz+y+1)(xy^2z+(y+1)^3)}{x^2y^3z}, y, \frac{x^3y^3z^2}{(xyz+y+1)(xy^2z+(y+1)^3)}\right)$
3244	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	2207: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$
3246	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	2685: $\left(x, y, \frac{xy^2}{z(y+1)(xy+y+1)}\right)$

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Table 112 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 112a
3490	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2265: $\left(\frac{(xz+1)(xyz+(y+1)^2)}{x^2yz}, y, \frac{x^3yz^2}{(xz+1)(xyz+(y+1)^2)}\right)$
3956	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{10}{x^2yz}+\frac{8}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3171: $\left(\frac{(xyz+y+1)(xy^2z+(y+1)^3)}{x^2y^3z}, y, \frac{x^3y^3z^2}{(xyz+y+1)(xy^2z+(y+1)^3)}\right)$

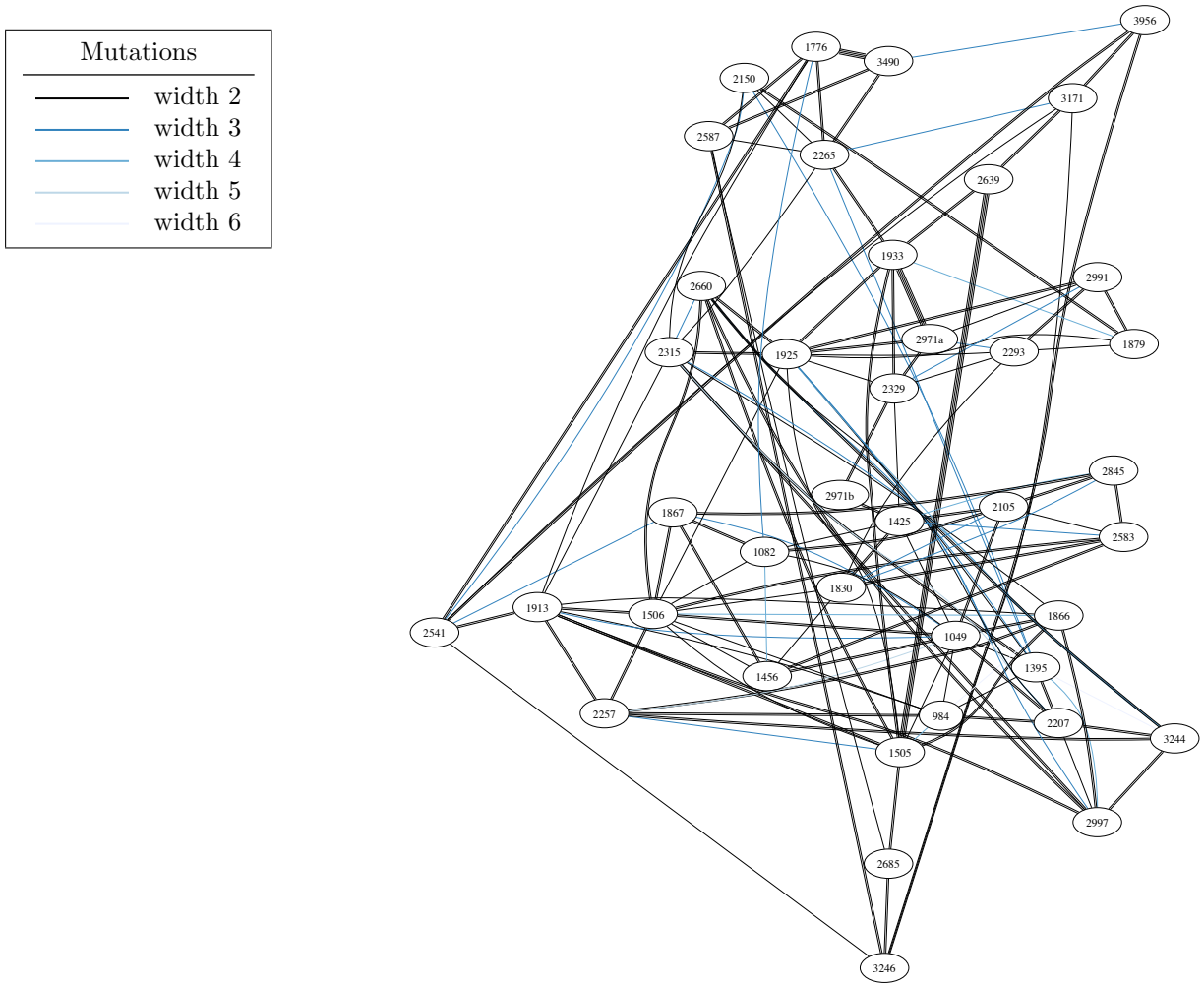

Figure 112b. All mutations between Minkowski polynomials in bucket 112

Bucket 113

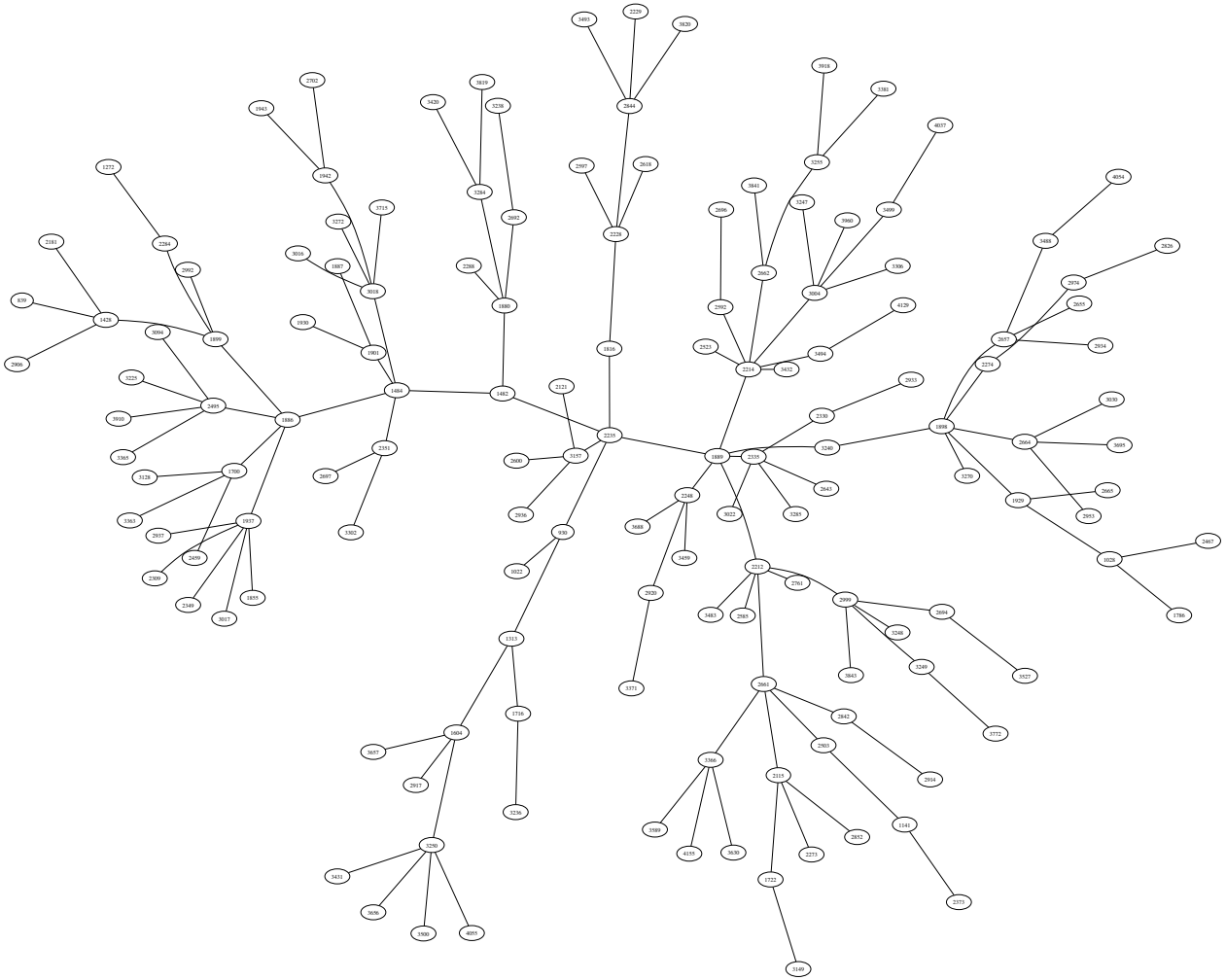

Figure 113a. Selected width-2 mutations between Minkowski polynomials in bucket 113

Table 113. Laurent polynomials and selected mutations for bucket 113.

Node	Laurent polynomial	Mutations from Figure 113a
839	$xy^2z^2 + 2xyz + x + 2yz + y + z + \frac{1}{y} + \frac{1}{x} + \frac{2}{xz} + \frac{2}{xyz} + \frac{1}{x^2yz^2}$	1428: $\left(x, \frac{1}{y+z}, \frac{y(y+z)}{xz}\right)$
930	$x + \frac{xz}{y} + y + z + \frac{2}{z} + \frac{z}{y} + \frac{1}{y} + \frac{z}{x} + \frac{3}{x} + \frac{3}{xz} + \frac{1}{xz^2}$	1022: $\left(\frac{y(x+1)}{x}, z(x+1), x\right)$ 1313: $\left(\frac{xyz+(x+y)^2}{x^2y}, \frac{xyz+(x+y)^2}{xy^2z}, \frac{x}{y}\right)$ 2235: $\left(\frac{xz}{y+z}, z, y\right)$
1022	$xz + x + \frac{x}{y} + y + \frac{y}{z} + z + \frac{1}{z} + \frac{2}{y} + \frac{y}{x} + \frac{2}{x} + \frac{1}{xy}$	930: $\left(z, \frac{xz}{z+1}, \frac{y}{z+1}\right)$
1028	$xy + \frac{xy}{z} + x + y + \frac{2y}{z} + z + \frac{2z}{y} + \frac{1}{y} + \frac{z}{y^2} + \frac{y}{xz} + \frac{1}{x}$	1786: $\left(\frac{xz+y}{xy}, \frac{xyz}{xz+y}, \frac{x^2z}{xz+y}\right)$ 1929: $\left(\frac{x}{y}, \frac{1}{z}, \frac{x+y}{xyz}\right)$ 2467: $\left(\frac{x^2y^2z}{(xyz+1)(xy^2z+1)}, \frac{(xyz+1)(xy^2z+1)}{x^2yz}, \frac{(xyz+1)(xy^2z+1)}{x^3y^2z^2}\right)$
1141	$x + y + z + \frac{3}{y} + \frac{2}{yz} + \frac{3}{y^2z} + \frac{1}{y^3z^2} + \frac{yz}{x} + \frac{2y}{x} + \frac{3}{x} + \frac{2}{xyz} + \frac{y}{x^2}$	2373: $\left(\frac{(xyz^2+xyz+1)(xyz^2+(xyz+1)^2)}{x^3y^2z^3}, \frac{(xyz^2+xyz+1)(xyz^2+(xyz+1)^2)}{x^3y^2z^2}, \frac{x^4y^3z^3}{(xyz^2+xyz+1)(xyz^2+(xyz+1)^2)}\right)$ 2503: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$
1272	$x + \frac{x}{yz} + y + z + \frac{1}{z} + \frac{2}{y} + \frac{2y}{x} + \frac{2z}{x} + \frac{3}{x} + \frac{z}{xy} + \frac{y}{x^2} + \frac{z}{x^2}$	2284: $\left(x, \frac{xy}{x+1}, z\right)$
1313	$x + \frac{x}{y} + \frac{x}{y^2z} + y + z + \frac{2}{y} + \frac{2}{yz} + \frac{2y}{x} + \frac{z}{x} + \frac{2}{x} + \frac{1}{xz} + \frac{y}{x^2}$	930: $\left(\frac{xz^2+y(z+1)^2}{xyz}, \frac{xz^2+y(z+1)^2}{xyz^2}, \frac{xz}{y}\right)$ 1604: $\left(x, \frac{xz+y+z}{yz}, \frac{xz^2}{xz+y+z}\right)$ 1716: $\left(x, \frac{xz+y}{yz}, \frac{y^2}{xz+y}\right)$
1428	$x + y + \frac{2y}{z} + z + \frac{2z}{y} + \frac{1}{y} + \frac{z}{y^2} + \frac{y^2}{xz} + \frac{y^2}{xz^2} + \frac{y}{x} + \frac{2y}{xz} + \frac{1}{x}$	839: $\left(x, \frac{xz}{xyz+1}, \frac{1}{y(xyz+1)}\right)$ 1899: $\left(\frac{x+y}{yz}, \frac{x}{y}, \frac{x^2}{x+y}\right)$ 2181: $\left(\frac{x^2z+x+y}{x^2}, \frac{x^2z+x+y}{x^2yz}, \frac{x^2z+x+y}{xy^2z}\right)$ 2906: $\left(\frac{xz}{y^2+yz+z}, \frac{xyz}{y^2+yz+z}, \frac{xy^2}{y^2+yz+z}\right)$
1482	$x + y + \frac{y}{z} + z + \frac{2}{z} + \frac{z}{y} + \frac{2}{y} + \frac{1}{yz} + \frac{yz}{x} + \frac{y}{x} + \frac{z}{x} + \frac{1}{x}$	1484: $\left(\frac{z+1}{y}, z, \frac{z+1}{x}\right)$ 1880: $\left(\frac{x+yz+y}{y^2z}, \frac{x}{y}, \frac{x+yz+y}{xy}\right)$ 2235: $\left(z, y, \frac{(y+1)^2}{xy}\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
1484	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1482: $\left(\frac{y+1}{z}, \frac{y+1}{x}, y\right)$ 1886: $\left(x, z, \frac{yz}{z+1}\right)$ 1901: $\left(y, z, \frac{xy}{y+z}\right)$ 2351: $\left(y, z, \frac{y+1}{x}\right)$ 3018: $\left(y, z, \frac{(y+1)^2}{xy}\right)$
1604	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	1313: $\left(x, \frac{xyz+x+yz}{y^2z}, \frac{xyz+x+yz}{xy}\right)$ 2917: $\left(x, \frac{xyz}{xz+1}, z\right)$ 3250: $\left(x, \frac{(x+1)^2}{xy}, z\right)$ 3657: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, z\right)$
1700	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1886: $\left(y, \frac{yz+z+1}{x}, \frac{1}{z}\right)$ 2459: $\left(\frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}, \frac{xyz+x+y}{xy^2z}\right)$ 3128: $\left(y, z, \frac{xyz}{yz+(z+1)^2}\right)$ 3363: $\left(\frac{(z+1)(xyz+z+1)}{xz}, \frac{x^2yz}{(z+1)(xyz+z+1)}, \frac{(z+1)(xyz+z+1)}{x^2yz^2}\right)$
1716	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{x^2z}$	1313: $\left(x, \frac{x+yz}{y}, \frac{x+yz}{y^2z}\right)$ 3236: $\left(y, x, \frac{x^2z}{(x+1)^2}\right)$
1722	$xz^2+2xz+x+y+2z+\frac{z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2yz}+\frac{1}{x^2yz^2}$	2115: $\left(\frac{x^2}{x+y}, \frac{x+y}{xz}, \frac{y}{x}\right)$ 3149: $\left(\frac{x^2y}{xy+(xyz+1)^2}, \frac{xy+(xyz+1)^2}{x}, \frac{xy+(xyz+1)^2}{x^3y^2z}\right)$
1786	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1028: $\left(\frac{xz+1}{x}, \frac{y(xz+1)}{xz}, xy\right)$
1816	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	2228: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x}{y}, \frac{x^2yz+(x+y)^2}{x^2y^2z}\right)$ 2235: $\left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$
1855	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xyz}$	1937: $\left(\frac{xz+y}{yz}, \frac{xz+y}{z}, \frac{xz^2}{y(xz+y)}\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
1880	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	1482: $\left(\frac{xy+x+yz}{xz}, \frac{xy+x+yz}{xyz}, \frac{yz}{x}\right)$ 2288: $\left(x, \frac{xz+y+z}{yz}, \frac{xz^2}{xz+y+z}\right)$ 2692: $\left(y, \frac{xy}{y+1}, \frac{y+1}{xyz}\right)$ 3284: $\left(y, \frac{(xz+y)(xyz+xz+y)}{x^2yz}, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}\right)$
1886	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{1}{xyz}$	1484: $\left(x, \frac{z(y+1)}{y}, y\right)$ 1700: $\left(\frac{x+z+1}{yz}, x, \frac{1}{z}\right)$ 1899: $\left(x, \frac{xz+x+z}{yz}, \frac{xy}{xz+x+z}\right)$ 1937: $\left(x, \frac{x+1}{y}, \frac{xz}{x+1}\right)$ 2495: $\left(\frac{(y+z)(y+z+1)}{xyz}, y, \frac{1}{z}\right)$
1887	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1901: $\left(y, \frac{z(xy+y+1)}{xy}, x\right)$
1889	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	2212: $\left(y, \frac{x^2}{x+yz}, \frac{xyz}{x+yz}\right)$ 2214: $\left(z, \frac{x^2z}{xz+y}, \frac{xyz}{xz+y}\right)$ 2235: $\left(\frac{(y+1)^2(y+z)}{xyz}, z, y\right)$ 2248: $\left(y, \frac{xyz+xz+y}{xy}, \frac{xyz+xz+y}{x^2z}\right)$ 2335: $\left(y, \frac{y+1}{yz}, \frac{y+1}{x}\right)$ 3240: $\left(y, \frac{xy}{(z+1)(y+z)}, \frac{xyz}{(z+1)(y+z)}\right)$
1898	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1929: $\left(x, y, \frac{x+y}{yz}\right)$ 2274: $\left(\frac{xy}{y+1}, y, z\right)$ 2657: $\left(\frac{(y+z+1)^2}{xy}, \frac{(y+z+1)^2}{xyz}, y\right)$ 2664: $\left(y, z, \frac{(y+z)(yz+y+z)}{xyz^2}\right)$ 3240: $\left(y, \frac{(z+1)(y+z+1)}{xz}, \frac{xy}{(z+1)(y+z+1)}\right)$ 3270: $\left(\frac{xy^2z}{(y+1)(yz+1)}, y, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
1899	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{z}{x^2}$	1428: $\left(\frac{z(y+1)}{y}, \frac{z(y+1)}{y^2}, \frac{y+1}{x}\right)$ 1886: $\left(x, \frac{x+yz+1}{y}, \frac{x}{yz}\right)$ 2284: $\left(\frac{xy}{y+1}, y, \frac{yz}{y+1}\right)$ 2992: $\left(\frac{xy^2z}{(y+1)(yz+1)}, y, \frac{xy}{(y+1)(yz+1)}\right)$
1901	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}$	1484: $\left(\frac{z(x+y)}{x}, x, y\right)$ 1887: $\left(z, x, \frac{xyz}{xz+x+1}\right)$ 1930: $\left(x, y, \frac{xy}{z(y+1)}\right)$
1929	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1028: $\left(\frac{y(x+1)}{z}, \frac{y(x+1)}{xz}, \frac{1}{y}\right)$ 1898: $\left(x, y, \frac{x+y}{yz}\right)$ 2665: $\left(\frac{yz+(z+1)^2}{xz}, y, z\right)$
1930	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	1901: $\left(x, y, \frac{xy}{z(y+1)}\right)$
1937	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2z}$	1855: $\left(\frac{y^2z}{yz+1}, \frac{y}{x}, \frac{yz+1}{x}\right)$ 1886: $\left(x, \frac{x+1}{y}, \frac{z(x+1)}{x}\right)$ 2309: $\left(\frac{xz}{z+1}, z, \frac{z+1}{y}\right)$ 2349: $\left(\frac{yz+y+1}{x}, \frac{yz+y+1}{xy}, z\right)$ 2937: $\left(\frac{xy}{(y+1)(y+z)}, \frac{1}{y}, \frac{(y+1)(y+z)}{xyz}\right)$ 3017: $\left(\frac{xyz}{yz+z+1}, \frac{xz}{yz+z+1}, z\right)$
1942	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1943: $\left(\frac{x(z+1)}{yz}, x, z\right)$ 2702: $\left(\frac{(z+1)(y+z+1)}{xz}, y, z\right)$ 3018: $\left(y, \frac{xyz}{(z+1)(y+1)}, \frac{xy}{(z+1)(y+1)}\right)$
1943	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	1942: $\left(z, \frac{z+1}{x}, y\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2115	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	1722: $\left(x(z+1), xz(z+1), \frac{z+1}{y}\right)$ 2273: $\left(\frac{x^2+xz+yz}{xyz}, \frac{x^2+xz+yz}{x^2z}, \frac{x^2+xz+yz}{x^3}\right)$ 2661: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 2852: $\left(x, y, \frac{x^2y^2z}{(xy+x+y)^2}\right)$
2121	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	3157: $\left(x, y, \frac{xyz}{xy+y+1}\right)$
2181	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1428: $\left(\frac{xz^2+y^3+y^2z}{xy^2z}, \frac{xz^2+y^3+y^2z}{xyz^2}, \frac{x^2z^2}{xz^2+y^3+y^2z}\right)$
2212	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	1889: $\left(y+z, x, \frac{z(y+z)}{xy}\right)$ 2585: $\left(x, y, \frac{xz}{x+y+1}\right)$ 2661: $\left(x, y, \frac{x}{z(x+1)}\right)$ 2761: $\left(y, \frac{(yz+z+1)^2}{xyz}, \frac{xy^2z^2}{(yz+z+1)^2}\right)$ 2999: $\left(x, y, \frac{y+1}{yz}\right)$ 3483: $\left(x, z, \frac{x^2y}{(x+1)(x+z+1)}\right)$
2214	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	1889: $\left(\frac{xy+z}{x}, \frac{z(xy+z)}{xy}, x\right)$ 2523: $\left(\frac{xy+x+z}{xz}, y, \frac{x^2y}{xy+x+z}\right)$ 2592: $\left(x, \frac{xyz}{xy+y+1}, y\right)$ 2662: $\left(x, \frac{xyz}{xz+1}, z\right)$ 3004: $\left(x, \frac{z(y+1)}{y}, y\right)$ 3432: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}\right)$ 3494: $\left(x, \frac{x^2yz^2}{(xz+1)(xz+z+1)}, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2228	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1816: $\left(\frac{xy^2+z(y+1)^2}{xyz}, \frac{xy^2+z(y+1)^2}{xy^2z}, \frac{x^2y^2}{xy^2+z(y+1)^2}\right)$ 2597: $\left(x, \frac{xy}{x+1}, \frac{z(x+1)}{x}\right)$ 2618: $\left(x, \frac{xz+y}{yz}, \frac{xz^2}{xz+y}\right)$ 2844: $\left(x, \frac{xz+y+z}{yz}, \frac{y^2}{xz+y+z}\right)$
2229	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2844: $\left(x, \frac{xy^2}{xy+y+z}, \frac{xy+y+z}{xyz}\right)$
2235	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	930: $\left(\frac{x(y+z)}{y}, z, y\right)$ 1482: $\left(\frac{(y+1)^2}{yz}, y, x\right)$ 1816: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$ 1889: $\left(\frac{(z+1)^2(y+z)}{xyz}, z, y\right)$ 3157: $\left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$
2248	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	1889: $\left(\frac{xy+y+z}{yz}, x, \frac{xy^2}{xy+y+z}\right)$ 2920: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$ 3459: $\left(y, \frac{(y+z+1)^2}{xy}, \frac{(y+z+1)^2}{xy^2z}\right)$ 3688: $\left(y, \frac{yz+(y+1)^2}{xy}, z\right)$
2273	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	2115: $\left(\frac{xy+xz+yz}{xyz}, \frac{xy+xz+yz}{xy^2}, \frac{xy+xz+yz}{x^2z}\right)$
2274	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1898: $\left(\frac{x(y+1)}{y}, y, z\right)$ 2974: $\left(y, \frac{(y+z+1)^2}{xyz}, z\right)$
2284	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1272: $\left(x, \frac{y(x+1)}{x}, z\right)$ 1899: $\left(\frac{x(y+1)}{y}, y, \frac{z(y+1)}{y}\right)$
2288	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	1880: $\left(x, \frac{xyz+x+yz}{y^2z}, \frac{xyz+x+yz}{xy}\right)$
2309	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	1937: $\left(\frac{x(y+1)}{y}, \frac{y+1}{z}, y\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2330	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2335: $\left(x, y, \frac{z(x+y+1)}{x}\right)$ 2933: $\left(y, \frac{(y+1)(yz+z+1)}{xyz}, z\right)$
2335	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	1889: $\left(\frac{x+1}{z}, x, \frac{x+1}{xy}\right)$ 2330: $\left(x, y, \frac{xz}{x+y+1}\right)$ 2643: $\left(y, \frac{xy}{y+z}, z\right)$ 3022: $\left(x, y, \frac{x^2z}{(x+1)(x+y+1)}\right)$ 3285: $\left(y, \frac{xy^2}{(y+1)(y+z)}, z\right)$
2349	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1937: $\left(\frac{xz+x+y}{xy}, \frac{x}{y}, z\right)$
2351	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1484: $\left(\frac{x+1}{z}, x, y\right)$ 2697: $\left(y, \frac{yz+z+1}{xz}, \frac{1}{z}\right)$ 3302: $\left(y, \frac{xy}{y+z+1}, \frac{1}{z}\right)$
2373	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{5}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^2z^3}$	1141: $\left(\frac{(xyz+x+y^2z)(y^2z+x(yz+1)^2)}{x^2y^3z^2}, \frac{x^3y^3z^3}{(xyz+x+y^2z)(y^2z+x(yz+1)^2)}, \frac{y}{x}\right)$
2459	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1700: $\left(\frac{xy+yz+1}{x}, \frac{xy+yz+1}{xyz}, \frac{x^2y}{xy+yz+1}\right)$
2467	$xy^2z^2+2xyz+x+y^2z+2yz+y+z+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	1028: $\left(\frac{(y+z)(xy^2+z)}{y^2z}, xy, \frac{y^2}{x(y+z)(xy^2+z)}\right)$
2495	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	1886: $\left(\frac{(yz+1)(yz+z+1)}{xyz}, y, \frac{1}{z}\right)$ 3094: $\left(\frac{x^2z}{xz+yz+1}, \frac{xz+yz+1}{xyz}, \frac{xz+yz+1}{x}\right)$ 3225: $\left(\frac{x^2}{x+z}, \frac{x+z}{xz}, \frac{x+z}{xy}\right)$ 3365: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^3yz}{x^2yz+(x+y)^2}, \frac{x^2y^2z}{x^2yz+(x+y)^2}\right)$ 3910: $\left(\frac{x^3y^2z}{(xy+1)(xyz+y+z)}, \frac{(xy+1)(xyz+y+z)}{x^2yz}, \frac{(xy+1)(xyz+y+z)}{x^2y^2}\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2503	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^3z^2}$	1141: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$ 2661: $\left(x, \frac{(y+z)^2}{y^2z}, \frac{y^3}{(y+z)^2}\right)$
2523	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{2z}{x^2y^2}+\frac{z^2}{x^3y^2}$	2214: $\left(\frac{xyz+xz+y}{xy}, y, \frac{xyz+xz+y}{x^2z}\right)$
2585	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	2212: $\left(x, y, \frac{z(x+y+1)}{x}\right)$
2592	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	2214: $\left(x, z, \frac{y(xz+z+1)}{xz}\right)$ 2696: $\left(x, y, \frac{z(y+1)}{y}\right)$
2597	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2228: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$
2600	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3157: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
2618	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	2228: $\left(x, \frac{x(yz+1)}{y^2z}, \frac{yz+1}{y}\right)$
2643	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2335: $\left(\frac{y(x+z)}{x}, x, z\right)$
2655	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2657: $\left(x, \frac{y}{z+1}, z\right)$
2657	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1898: $\left(\frac{(x+yz+y)^2}{xy^2z}, z, \frac{x}{y}\right)$ 2655: $(x, y(z+1), z)$ 2934: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$ 3488: $\left(x, \frac{xyz}{xz+z+1}, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2661	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2115: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$ 2212: $\left(x, y, \frac{x}{z(x+1)}\right)$ 2503: $\left(x, \frac{(yz+1)^2}{y^2z}, \frac{(yz+1)^2}{y^3z^2}\right)$ 2842: $\left(x, \frac{(y+z)(x+1)}{xyz}, \frac{(y+z)(x+1)}{xy^2}\right)$ 3366: $\left(y, \frac{(y+1)(yz+1)^2}{xy^2z}, \frac{(y+1)(yz+1)^2}{xy^3z^2}\right)$
2662	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2214: $\left(x, \frac{y(xz+1)}{xz}, z\right)$ 3255: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 3841: $\left(\frac{x^3yz^2}{(xz+1)(xyz+y+1)}, y, \frac{(xz+1)(xyz+y+1)}{x^2yz}\right)$
2664	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1898: $\left(\frac{(x+y)(xy+x+y)}{xy^2z}, x, y\right)$ 2953: $\left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{y^2z}{yz+1}\right)$ 3030: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{xy}, \frac{xz+y+1}{x}\right)$ 3695: $\left(\frac{x^3z^2}{(xz+y+1)^2}, \frac{(xz+y+1)^2}{x^2z}, \frac{(xz+y+1)^2}{x^2yz}\right)$
2665	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	1929: $\left(\frac{yz+(z+1)^2}{xz}, y, z\right)$
2692	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	1880: $\left(\frac{y(x+1)}{x}, x, \frac{1}{yz}\right)$ 3238: $\left(x, y, \frac{(y+1)(x+y+1)}{xy^2z}\right)$
2694	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2999: $\left(x, y, \frac{xz}{x+1}\right)$ 3527: $\left(x, \frac{xyz}{xz+z+1}, z\right)$
2696	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2592: $\left(x, y, \frac{yz}{y+1}\right)$
2697	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2351: $\left(x, \frac{x+z+1}{y}, z\right)$
2702	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1942: $\left(\frac{x(y+1)}{y}, y, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2761	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	2212: $\left(\frac{(xyz+x+yz)^2}{x^2y^2z}, x, \frac{yz}{x}\right)$
2826	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4z}{x}+\frac{2}{x}+\frac{6z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{4z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2974: $\left(x, y, \frac{y}{z(y+1)}\right)$
2842	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	2661: $\left(x, \frac{(y+z)(x+1)}{xyz}, \frac{(y+z)(x+1)}{xy^2}\right)$ 2914: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{xyz}{xy+1}\right)$
2844	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	2228: $\left(x, \frac{x+yz+1}{y}, \frac{x+yz+1}{y^2z}\right)$ 2229: $\left(x, \frac{xyz+yz+1}{xz}, \frac{xyz+yz+1}{xyz^2}\right)$ 3493: $\left(y, x, \frac{z(y+1)}{y}\right)$ 3820: $\left(y, x, \frac{x^2y^2}{z(xy+y+1)^2}\right)$
2852	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	2115: $\left(x, y, \frac{z(xy+x+y)^2}{x^2y^2}\right)$
2906	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	1428: $\left(x+y+z, \frac{y^2}{xz}, \frac{y}{x}\right)$
2914	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2842: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{z(xy+1)}{xy}\right)$
2917	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	1604: $\left(x, \frac{y(xz+1)}{xz}, z\right)$
2920	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	2248: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$ 3371: $\left(x, y, \frac{(xy+x+1)^2}{x^3yz}\right)$
2933	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2330: $\left(\frac{(x+1)(xz+z+1)}{xyz}, x, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
2934	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2657: $\left(x, \frac{xz+(z+1)^2}{xyz}, z\right)$
2936	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	3157: $\left(x, y, \frac{(y+1)^2(xy+y+1)}{x^2yz}\right)$
2937	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	1937: $\left(\frac{(y+1)(xz+y)}{yz}, \frac{1}{y}, \frac{1}{xz}\right)$
2953	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xy^2z^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	2664: $\left(\frac{y(xz+1)}{xz}, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$
2974	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2274: $\left(\frac{(x+z+1)^2}{xyz}, x, z\right)$ 2826: $\left(x, y, \frac{y}{z(y+1)}\right)$
2992	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	1899: $\left(\frac{(y+1)(x+z)}{y}, y, \frac{x}{yz}\right)$
2999	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2212: $\left(x, y, \frac{y+1}{yz}\right)$ 2694: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3248: $\left(x, \frac{xyz}{xz+1}, z\right)$ 3249: $\left(x, \frac{xy}{x+1}, z\right)$ 3843: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3004	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^2y^3}$	2214: $\left(x, z, \frac{yz}{z+1}\right)$ 3247: $\left(\frac{xz+1}{z}, \frac{xyz}{xz+1}, \frac{y}{z}\right)$ 3306: $\left(\frac{x^2y}{xy+1}, \frac{xy+1}{x}, \frac{y}{z}\right)$ 3499: $\left(\frac{xyz+xz+1}{x}, \frac{x^2yz}{xyz+xz+1}, y\right)$ 3960: $\left(\frac{x^4z^3}{(xz+1)^2(xz+y)}, \frac{(xz+1)^2(xz+y)}{x^3z^2}, y\right)$
3016	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	3018: $\left(x, y, \frac{z(y+1)}{y}\right)$
3017	$x+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	1937: $\left(\frac{xz+yz+y}{z}, z, \frac{x}{y}\right)$
3018	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1484: $\left(\frac{(x+1)^2}{xz}, x, y\right)$ 1942: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{y}{z}\right)$ 3016: $\left(x, y, \frac{yz}{y+1}\right)$ 3272: $\left(x, y, \frac{xyz}{xy+y+1}\right)$ 3715: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$
3022	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2335: $\left(x, y, \frac{z(x+1)(x+y+1)}{x^2}\right)$
3030	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2664: $\left(\frac{xyz+y+z}{yz}, \frac{z}{y}, \frac{xyz^2}{xyz+y+z}\right)$
3094	$x+2yz+y+z+\frac{1}{y}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{4yz}{x}+\frac{4y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	2495: $\left(\frac{xyz+y+z}{yz}, \frac{xyz+y+z}{xy^2z}, \frac{xyz^2}{xyz+y+z}\right)$
3128	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1700: $\left(\frac{z(xy+(y+1)^2)}{xy}, x, y\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3149	$xy^2z^2+2xyz+x+yz^2+2yz+y+z+\frac{4z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}+\frac{4}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	1722: $\left(\frac{x^3yz^2+(xz+1)^2}{x^2yz^2}, \frac{x^3y^2z^2}{x^3yz^2+(xz+1)^2}, \frac{1}{x^2yz}\right)$
3157	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	2121: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$ 2235: $\left(\frac{xy^2z+(y+1)^3}{xy^2}, y, \frac{x^2y^2z}{xy^2z+(y+1)^3}\right)$ 2600: $\left(x, y, \frac{(y+1)^2}{xz}\right)$ 2936: $\left(x, y, \frac{(y+1)^2(xy+y+1)}{x^2yz}\right)$
3225	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{4}{x}+\frac{2z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	2495: $\left(\frac{xy+1}{y}, \frac{xy+1}{xyz}, \frac{xy+1}{xy^2}\right)$
3236	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^2y^2z}$	1716: $\left(y, x, \frac{z(y+1)^2}{y^2}\right)$
3238	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2692: $\left(x, y, \frac{(y+1)(x+y+1)}{xy^2z}\right)$
3240	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	1889: $\left(\frac{(y+z)(xy+z)}{xy}, x, \frac{z}{y}\right)$ 1898: $\left(\frac{(x+yz)(xyz+x+yz)}{xy^2z}, x, \frac{x}{yz}\right)$
3247	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	3004: $\left(\frac{x^2y}{xy+z}, \frac{xy+z}{x}, \frac{xy+z}{xz}\right)$
3248	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3yz^2}$	2999: $\left(x, \frac{y(xz+1)}{xz}, z\right)$
3249	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	2999: $\left(x, \frac{y(x+1)}{x}, z\right)$ 3772: $\left(x, z, \frac{(xz+x+1)(xz+(x+1)^2)}{x^3yz}\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3250	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{2}{x^2z}+\frac{2}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3yz^2}$	1604: $\left(x, \frac{(x+1)^2}{xy}, z\right)$ 3431: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$ 3500: $\left(\frac{x^2z}{xz+1}, y, \frac{xz+1}{x}\right)$ 3656: $\left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$ 4055: $\left(\frac{(xyz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+1)(xyz+(xz+1)^2)}\right)$
3255	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	2662: $\left(\frac{xz+y+1}{x}, y, \frac{x^2z}{xz+y+1}\right)$ 3381: $\left(x, \frac{x^2yz}{x^2z+xz+1}, z\right)$ 3918: $\left(x, \frac{x^3yz^2}{(xz+1)(x^2z+xz+1)}, z\right)$
3270	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	1898: $\left(\frac{x(y+1)(yz+1)}{y^2z}, y, z\right)$
3272	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	3018: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$
3284	$x+\frac{xz}{y}+\frac{xz}{y^2}+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{5}{xy}+\frac{2}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	1880: $\left(\frac{(x+yz)(xyz+x+yz)}{xy^2z}, x, \frac{xy^3z^2}{(x+yz)(xyz+x+yz)}\right)$ 3420: $\left(x, y, \frac{y^2z}{xy+(y+1)^2}\right)$ 3819: $\left(x, y, \frac{y^3z}{(y+1)(xy+(y+1)^2)}\right)$
3285	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2335: $\left(\frac{y(x+1)(x+z)}{x^2}, x, z\right)$
3302	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2351: $\left(\frac{y(xz+z+1)}{xz}, x, z\right)$
3306	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3yz}$	3004: $\left(\frac{xy+1}{y}, \frac{xy^2}{xy+1}, \frac{xy^2}{z(xy+1)}\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3363	$x+yz^2+2yz+y+2z+\frac{z^2}{x}+\frac{5z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{6}{x^2y}+\frac{5}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	1700: $\left(\frac{(yz+1)(xy+yz+1)}{xyz}, \frac{x^2y^2z}{(yz+1)(xy+yz+1)}, \frac{1}{yz}\right)$
3365	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{5}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{3}{x^2yz^2}+\frac{2y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	2495: $\left(\frac{xy^2z+(y+z)^2}{xyz}, \frac{xy^2z+(y+z)^2}{xy^2}, \frac{x^2y^2z}{xy^2z+(y+z)^2}\right)$
3366	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{3}{xy^2}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z}+\frac{2}{xy^3z^2}+\frac{1}{xy^4z^2}$	2661: $\left(\frac{(y+z)^2(x+1)}{xy^2z}, x, \frac{y}{xz}\right)$ 3589: $\left(\frac{x^2z}{xz+(y+z)^2}, \frac{xz+(y+z)^2}{xyz}, \frac{xy^2}{xz+(y+z)^2}\right)$ 3630: $\left(\frac{x^2y^2z}{xy^2z+yz+1}, \frac{xy^2z+yz+1}{xyz}, \frac{xy^2z^2}{xy^2z+yz+1}\right)$ 4155: $\left(\frac{x^4y^2z}{(xy+xz+1)(x^2yz+(xz+1)^2)}, \frac{(xy+xz+1)(x^2yz+(xz+1)^2)}{x^3yz}, \frac{x^2y}{(xy+xz+1)(x^2yz+(xz+1)^2)}\right)$
3371	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}+\frac{3}{x^2z}+\frac{2}{x^2y}+\frac{6}{x^2yz}+\frac{3}{x^2y^2z}+\frac{3}{x^3yz}+\frac{3}{x^3y^2z}+\frac{1}{x^4y^2z}$	2920: $\left(x, y, \frac{(xy+x+1)^2}{x^3yz}\right)$
3381	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{4}{x^2z}+\frac{1}{x^2y}+\frac{6}{x^2yz}+\frac{2}{x^3z^2}+\frac{3}{x^3yz}+\frac{3}{x^3yz^2}+\frac{3}{x^4yz^2}+\frac{1}{x^5yz^3}$	3255: $\left(x, \frac{y(x^2z+xz+1)}{x^2z}, z\right)$
3420	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{4}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	3284: $\left(x, y, \frac{z(xy+(y+1)^2)}{y^2}\right)$
3431	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^3}$	3250: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{x^3z^2}{xyz+(xz+1)^2}\right)$
3432	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{6}{x^2z}+\frac{3}{x^2yz}+\frac{3y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{y}{x^4z^3}$	2214: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}\right)$
3459	$x+y+z+\frac{2z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{xy^2z}$	2248: $\left(\frac{(x^2z+xz+y)^2}{x^3yz^2}, x, \frac{y}{xz}\right)$
3483	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2212: $\left(x, \frac{z(x+1)(x+y+1)}{x^2}, y\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3488	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2657: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$ 4054: $\left(\frac{(xyz+(y+1)^2)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+(y+1)^2)^2}, y\right)$
3493	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	2844: $\left(y, x, \frac{xz}{x+1}\right)$
3494	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	2214: $\left(x, \frac{y(xz+1)(xz+z+1)}{x^2z^2}, z\right)$ 4129: $\left(\frac{x^2yz}{xyz+(y+1)^2}, \frac{xyz+(y+1)^2}{xy}, y\right)$
3499	$x+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{3}{x^2z}+\frac{5}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	3004: $\left(\frac{(xy+1)^2}{xy^2}, z, \frac{x^2y^3}{z(xy+1)^2}\right)$ 4037: $\left(x, \frac{x^4yz^3}{(x^2z+xz+1)(x^2z+(xz+1)^2)}, \frac{(x^2z+xz+1)(x^2z+(xz+1)^2)}{x^4yz^2}\right)$
3500	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^4yz^3}$	3250: $\left(\frac{xz+1}{z}, y, \frac{xz^2}{xz+1}\right)$
3527	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2694: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$
3589	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{2y^2}{xz}+\frac{6y}{x}+\frac{2y}{xz}+\frac{6z}{x}+\frac{5}{x}+\frac{2z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3366: $\left(\frac{xy^2z+(yz+1)^2}{y^2z}, \frac{xy^2z+(yz+1)^2}{xy^3z}, \frac{xy^2z+(yz+1)^2}{xy^4z^2}\right)$
3630	$x+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{6}{xy}+\frac{4}{xyz}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{z}{x^2}+\frac{4}{x^2y}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	3366: $\left(\frac{xy^2z+yz+1}{y^2z}, \frac{xy^3z}{xy^2z+yz+1}, \frac{xy^2z+yz+1}{xy^2}\right)$
3656	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{3}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	3250: $\left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$
3657	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{1}{xyz^2}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{6}{x^2yz}+\frac{3}{x^2yz^2}+\frac{2}{x^3yz}+\frac{3}{x^3yz^2}+\frac{1}{x^4yz^2}$	1604: $\left(x, \frac{y(xz+1)^2}{x^2z^2}, z\right)$
3688	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{4}{xyz}+\frac{3}{xy^2}+\frac{5}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z}+\frac{2}{xy^3z^2}+\frac{1}{xy^4z^2}$	2248: $\left(\frac{xz+(x+1)^2}{xy}, x, z\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
3695	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3y^2}{x^2z}+\frac{7y}{x^2z}+\frac{5}{x^2z}+\frac{1}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2664: $\left(\frac{(xyz+y+z)^2}{xy^2z^2}, \frac{y}{z}, \frac{x^2y^3z^2}{(xyz+y+z)^2}\right)$
3715	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	3018: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
3772	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{7}{xyz}+\frac{4}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{8}{x^2yz}+\frac{6}{x^2yz^2}+\frac{3}{x^3yz}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^2}$	3249: $\left(x, \frac{(xy+x+1)(xy+(x+1)^2)}{x^3yz}, y\right)$
3819	$x+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{6}{xy^2z}+\frac{2}{xy^3z}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{10}{x^2yz}+\frac{10}{x^2y^2z}+\frac{5}{x^2y^3z}+\frac{1}{x^2y^4z}$	3284: $\left(x, y, \frac{z(y+1)(xy+(y+1)^2)}{y^3}\right)$
3820	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{6z}{xy}+\frac{4}{xy}+\frac{6z}{xy^2}+\frac{2}{xy^2}+\frac{2z}{xy^3}+\frac{z}{x^2}+\frac{4z}{x^2y}+\frac{6z}{x^2y^2}+\frac{4z}{x^2y^3}+\frac{z}{x^2y^4}$	2844: $\left(y, x, \frac{x^2y^2}{z(xy+x+1)^2}\right)$
3841	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2662: $\left(\frac{(xz+1)(xyz+y+1)}{xyz^2}, y, \frac{x^2yz^3}{(xz+1)(xyz+y+1)}\right)$
3843	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{7}{x^2yz}+\frac{3}{x^2yz^2}+\frac{3}{x^3yz}+\frac{3}{x^3yz^2}+\frac{1}{x^4yz^2}$	2999: $\left(x, \frac{(xz+x+1)^2}{x^2yz}, z\right)$
3910	$x+y+z+\frac{2z}{y}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{5z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{y}{x^2z^2}+\frac{6}{x^2z}+\frac{11}{x^2y}+\frac{8z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{6}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z^2}{x^3y^4}$	2495: $\left(\frac{(xy+1)(xyz+y+z)}{xy^2z}, \frac{x^2y^3z}{(xy+1)(xyz+y+z)}, \frac{x^2y^2z^2}{(xy+1)(xyz+y+z)}\right)$
3918	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{4}{x^2z}+\frac{1}{x^2y}+\frac{9}{x^2yz}+\frac{3}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{4}{x^3yz}+\frac{9}{x^3yz^2}+\frac{6}{x^4yz^2}+\frac{3}{x^4yz^3}+\frac{4}{x^5yz^3}+\frac{1}{x^6yz^4}$	3255: $\left(x, \frac{y(xz+1)(x^2z+xz+1)}{x^3z^2}, z\right)$
3960	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{7y}{x^2z}+\frac{2y}{x^2z^2}+\frac{7}{x^2z}+\frac{1}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{8y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{3y}{x^4z^3}+\frac{y^2}{x^5z^4}$	3004: $\left(\frac{(xy+1)^2(xy+z)}{x^2y^3}, \frac{1}{z}, \frac{x^3y^4}{z(xy+1)^2(xy+z)}\right)$
4037	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{5}{xyz}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{12}{x^2yz}+\frac{3}{x^2yz^2}+\frac{2}{x^3z^2}+\frac{10}{x^3yz}+\frac{10}{x^3yz^2}+\frac{10}{x^4yz^2}+\frac{3}{x^4yz^3}+\frac{5}{x^5yz^3}+\frac{1}{x^6yz^4}$	3499: $\left(x, \frac{(x^2yz+xyz+1)(x^2yz+(xyz+1)^2)}{x^4y^2z^3}, yz\right)$

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Table 113 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 113a
4054	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{5}{x}+\frac{5}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{3y^2}{x^2z}+\frac{10y}{x^2z}+\frac{12}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2y^2z}+\frac{y^3}{x^3z^2}+\frac{5y^2}{x^3z^2}+\frac{10y}{x^3z^2}+\frac{10}{x^3z^2}+\frac{5}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3488: $\left(\frac{(xyz+(z+1)^2)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+(z+1)^2)^2}\right)$
4055	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{5}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{6}{x^2z}+\frac{10}{x^2yz}+\frac{2}{x^2yz^2}+\frac{4}{x^2y^2z}+\frac{3}{x^3z^2}+\frac{9}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{3}{x^4yz^3}+\frac{4}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	3250: $\left(\frac{(xyz+1)(xyz+(xz+1)^2)}{x^3yz^2}, y, \frac{x^4yz^3}{(xyz+1)(xyz+(xz+1)^2)}\right)$
4129	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2y}{x^2z}+\frac{8}{x^2z}+\frac{12}{x^2yz}+\frac{8}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{y}{x^3z^2}+\frac{5}{x^3z^2}+\frac{10}{x^3yz^2}+\frac{10}{x^3y^2z^2}+\frac{5}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3494: $\left(\frac{xyz+(z+1)^2}{yz}, z, \frac{xy^2z}{xyz+(z+1)^2}\right)$
4155	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+5z+\frac{10z^2}{y}+\frac{6z}{y}+\frac{6z^3}{y^2}+\frac{6}{x}+\frac{19z}{xy}+\frac{6}{xy}+\frac{15z^2}{xy^2}+\frac{2}{x^2z}+\frac{17}{x^2y}+\frac{2}{x^2yz}+\frac{20z}{x^2y^2}+\frac{7}{x^3yz}+\frac{15}{x^3y^2}+\frac{1}{x^4yz^2}+\frac{6}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3366: $\left(\frac{(xy^2z+yz+1)(xy^2z+(yz+1)^2)}{xy^4z^2}, \frac{x^2y^5z^2}{(xy^2z+yz+1)(xy^2z+(yz+1)^2)}, \frac{xy^3z}{(xy^2z+yz+1)(xy^2z+(yz+1)^2)}\right)$

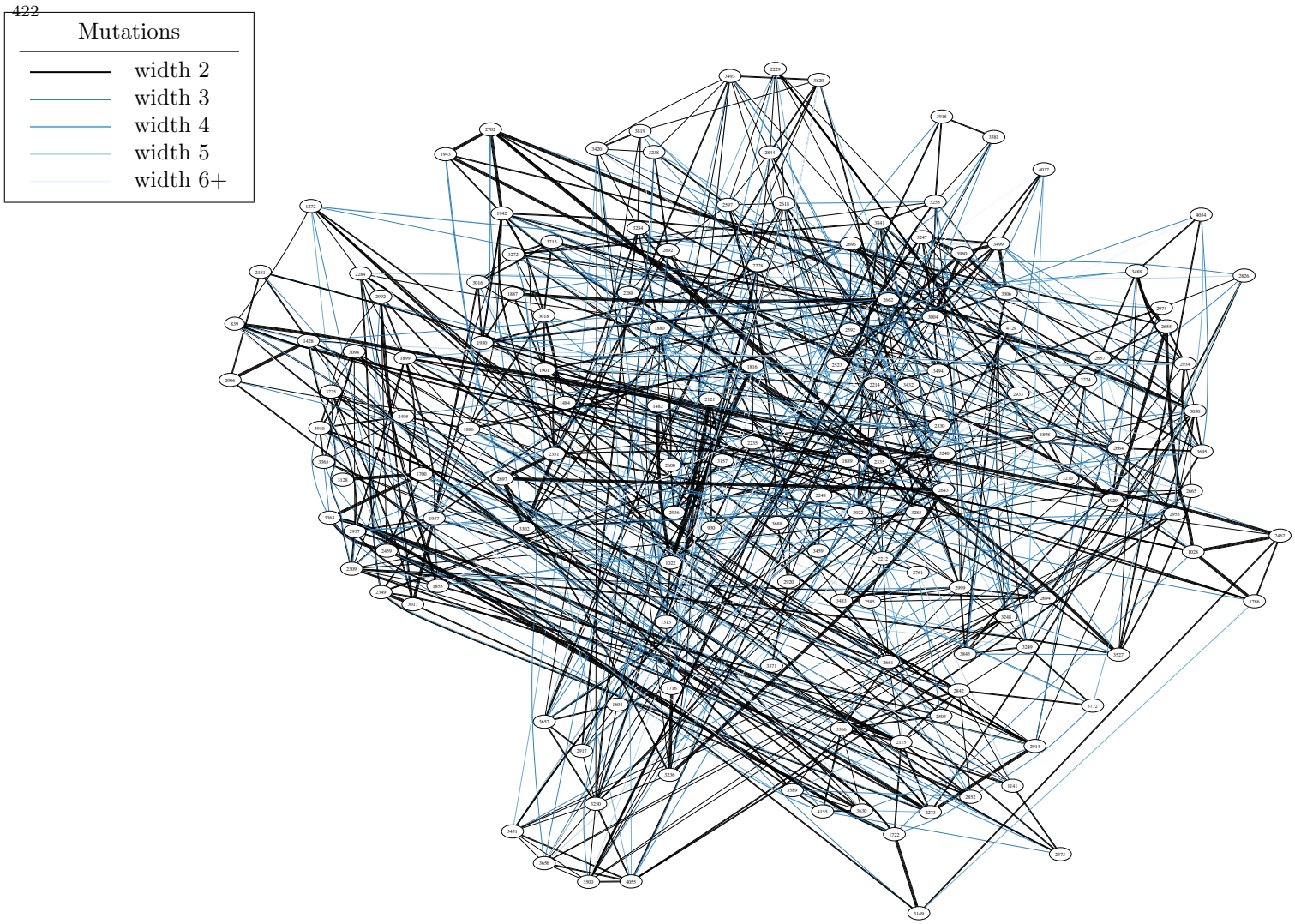
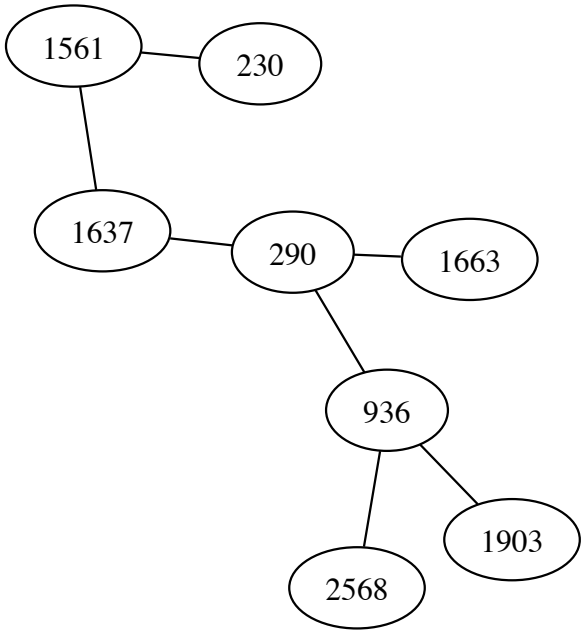
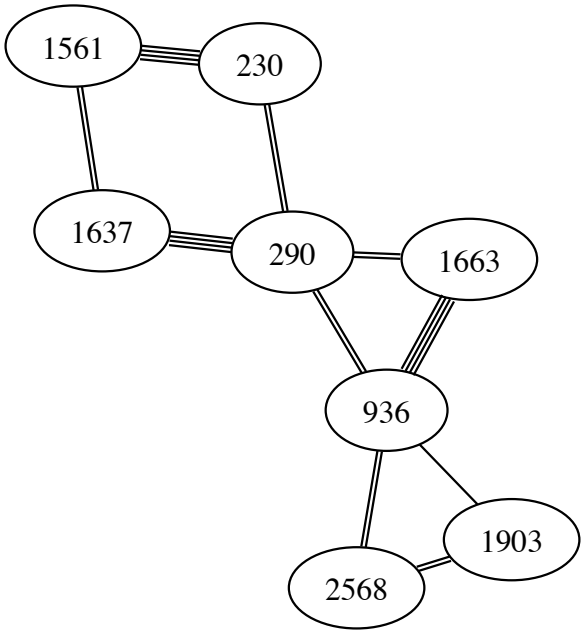


FIGURE 113B. All mutations between Minkowski polynomials in bucket 113

Bucket 114



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 114. Mutations between Minkowski polynomials in bucket 114

Table 114. Laurent polynomials and selected mutations for bucket 114.

Node	Laurent polynomial	Mutations from Figure 114a
230	$\frac{x^2y^2}{z}+2xy+x+y+z+\frac{3}{x}+\frac{2}{xy}+\frac{3}{x^2y}+\frac{1}{x^3y^2}$	$1561\colon \left(\frac{xy}{xz^2+y}, \frac{z(xz^2+y)}{y}, \frac{x^2z^2}{xz^2+y}\right)$
290	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	$936\colon \left(\frac{x}{y}, \frac{x^2}{x+y}, \frac{z(x+y)}{x}\right)$ $1637\colon \left(\frac{x^2yz}{xyz+xz^2+y}, \frac{xy}{xyz+xz^2+y}, \frac{x^2z^2}{xyz+xz^2+y}\right)$ $1663\colon \left(y, \frac{xy^2}{(y+1)^2}, \frac{z(y+1)^2}{y^2}\right)$
936	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	$290\colon \left(\frac{y(x+1)}{x}, \frac{y(x+1)}{x^2}, \frac{x^3}{y^2z(x+1)}\right)$ $1903\colon \left(x, \frac{xy}{x+1}, \frac{z(x+1)}{y}\right)$ $2568\colon \left(x, \frac{x^2y}{(x+1)^2}, \frac{z(x+1)^2}{x^2}\right)$
1561	$xz^2+2xz+x+\frac{xz^3}{y}+y+z+\frac{3z^2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{3}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3z^2}$	$230\colon \left(x+z, \frac{x^3y^2}{z(x+z)}, \frac{xy}{x+z}\right)$ $1637\colon \left(x, \frac{(xz+1)^2}{x^2y}, z\right)$
1637	$xyz+xz^2+2xz+x+y+z+\frac{z^2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{x^2z}+\frac{1}{x^2y}+\frac{1}{x^3z^2}$	$290\colon \left(x+y+z, \frac{x^2}{yz(x+y+z)}, \frac{x}{y(x+y+z)}\right)$ $1561\colon \left(x, \frac{(xz+1)^2}{x^2y}, z\right)$
1663	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	$290\colon \left(\frac{y(x+1)^2}{x^2}, x, \frac{x^2z}{(x+1)^2}\right)$
1903	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$936\colon \left(x, \frac{y(x+1)}{x}, \frac{yz}{x}\right)$
2568	$x+\frac{x}{y}+y+z+\frac{4}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{5}{xy}+\frac{1}{xyz}+\frac{2}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	$936\colon \left(x, \frac{y(x+1)^2}{x^2}, \frac{x^2z}{(x+1)^2}\right)$

Bucket 115

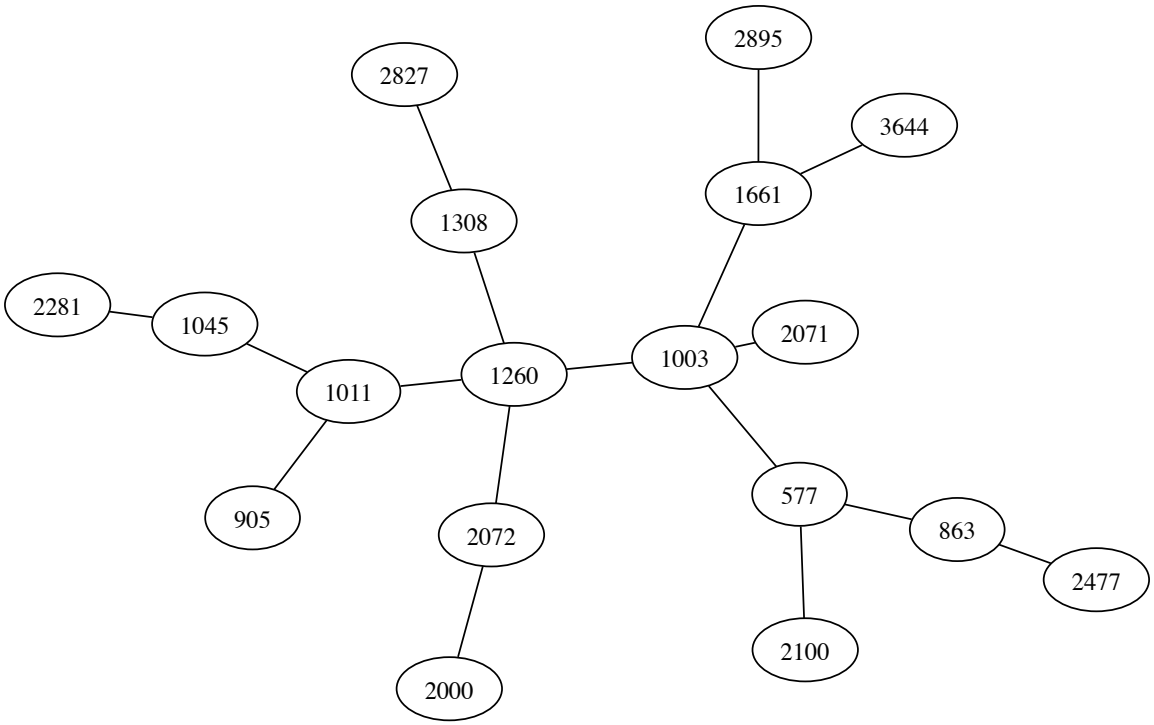


Figure 115a. Selected width-2 mutations between Minkowski polynomials in bucket 115

Table 115. Laurent polynomials and selected mutations for bucket 115.

Node	Laurent polynomial	Mutations from Figure 115a
577	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{x}{y^2z}+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	863: $\left(\frac{xyz+(xy+1)^2}{x^2y},\frac{xyz+(xy+1)^2}{x^3y^2},\frac{x^2y^2}{z}\right)$ 1003: $\left(z,\frac{z(x+y)}{xy},\frac{x^2}{x+y}\right)$ 2100: $\left(\frac{x^3y^2z^3+(xyz+1)^2}{x^2yz},\frac{x^3y^2z^3+(xyz+1)^2}{x^3y^2z^2},\frac{x^4y^2z^3}{x^3y^2z^3+(xyz+1)^2}\right)$
863	$\frac{x^2y^2}{z}+2xy+x+y+z+\frac{z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^3y^2}$	577: $\left(\frac{x^3+yz(x+y)^2}{x^2y^2z},\frac{x^3yz}{x^3+yz(x+y)^2},\frac{x^2}{y^2z}\right)$ 2477: $\left(\frac{x^3y^2z^3+(xyz+1)^3}{x^3y^2z^2},\frac{x^4y^3z^3}{x^3y^2z^3+(xyz+1)^3},\frac{x^3y^2z^3+(xyz+1)^3}{x^2z}\right)$
905	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	1011: $\left(x,\frac{z(y+1)}{y},y\right)$
1003	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	577: $\left(\frac{x+yz}{y},\frac{x(x+yz)}{y^2z},x\right)$ 1260: $\left(\frac{xyz+x+y}{xy},\frac{x^2yz}{xyz+x+y},\frac{x}{y}\right)$ 1661: $\left(z,x,\frac{x+z(x+1)^2}{xyz}\right)$ 2071: $\left(\frac{(y+1)^2(xz+y)}{xy^2},\frac{(y+1)^2(xz+y)}{x^2yz},y\right)$
1011	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{1}{xy^2}$	905: $\left(x,z,\frac{yz}{z+1}\right)$ 1045: $\left(\frac{x(y+1)}{y},y,z\right)$ 1260: $\left(\frac{x^2yz+(x+y)^2}{x^2y},\frac{x}{y},\frac{x^2yz+(x+y)^2}{x^2y^2z}\right)$
1045	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1011: $\left(\frac{xy}{y+1},y,z\right)$ 2281: $\left(y,\frac{yz+(y+1)^2}{xy},\frac{yz+(y+1)^2}{xyz}\right)$
1260	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{3}{x^2z}+\frac{y}{x^3z}$	1003: $\left(\frac{xy+z+1}{x},\frac{xy+z+1}{xz},\frac{x^2y}{xy+z+1}\right)$ 1011: $\left(\frac{xy^2+z(y+1)^2}{xyz},\frac{xy^2+z(y+1)^2}{xy^2z},\frac{x^2y^2}{xy^2+z(y+1)^2}\right)$ 1308: $\left(x,y,\frac{(x+y)^2}{x^2y^2z}\right)$ 2072: $\left(\frac{(xz+y+1)(xyz+(y+1)^2)}{x^2yz},\frac{(xz+y+1)(xyz+(y+1)^2)}{x^2y^2z},\frac{x^3yz^2}{(xz+y+1)(xyz+(y+1)^2)}\right)$
1308	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1260: $\left(x,y,\frac{(x+y)^2}{x^2y^2z}\right)$ 2827: $\left(x,\frac{x^2y^2z}{1+yz(x+1)^2},\frac{1+yz(x+1)^2}{x^2y}\right)$

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Table 115 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 115a
1661	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}$	$1003\colon \left(y, \frac{y+x(y+1)^2}{xyz}, x\right)$ $2895\colon \left(y, \frac{x^2z}{xz+1}, \frac{xz+1}{x}\right)$ $3644\colon \left(y, \frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2z}\right)$
2000	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{10}{x^2z}+\frac{10}{x^2yz}+\frac{5}{x^2y^2z}+\frac{1}{x^2y^3z}$	$2072\colon \left(x, y, \frac{(y+1)^4}{x^2y^2z}\right)$
2071	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	$1003\colon \left(\frac{(z+1)^2(x+y)}{xyz}, z, \frac{x^2z^2}{(z+1)^2(x+y)}\right)$
2072	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{5}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	$1260\colon \left(\frac{(xyz+x+y)(x^2yz+(x+y)^2)}{x^3y^2z}, \frac{x}{y}, \frac{x^4y^2z^2}{(xyz+x+y)(x^2yz+(x+y)^2)}\right)$ $2000\colon \left(x, y, \frac{(y+1)^4}{x^2y^2z}\right)$
2100	$xy^2z^2+xyz^2+2xyz+x+y^2z+yz+y+z+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3y^2z^2}$	$577\colon \left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x}{y^2z}, \frac{x^2y^2z}{x^2yz+(x+y)^2}\right)$
2281	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$1045\colon \left(\frac{xy+z(x+1)^2}{xyz}, x, \frac{y}{z}\right)$
2477	$xy^3z^2+xy^2z^2+xy^2z+2xyz+x+3y^2z+yz+y+z+\frac{3y}{x}+\frac{3}{x}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^3y^2z^2}$	$863\colon \left(\frac{x^5y^4+z(xy+1)^3}{x^3y^2z}, \frac{z}{x^2y}, \frac{x^6y^4}{x^5y^4+z(xy+1)^3}\right)$
2827	$x+\frac{x}{y}+y+z+\frac{4}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{5}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{z}{x^2}+\frac{3}{x^2y}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	$1308\colon \left(x, \frac{1+yz(x+1)^2}{x^2z}, \frac{x^2yz^2}{1+yz(x+1)^2}\right)$
2895	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	$1661\colon \left(\frac{yz+1}{z}, x, \frac{yz^2}{yz+1}\right)$
3644	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{7}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	$1661\colon \left(\frac{(yz+1)^2}{yz^2}, x, \frac{y^2z^3}{(yz+1)^2}\right)$

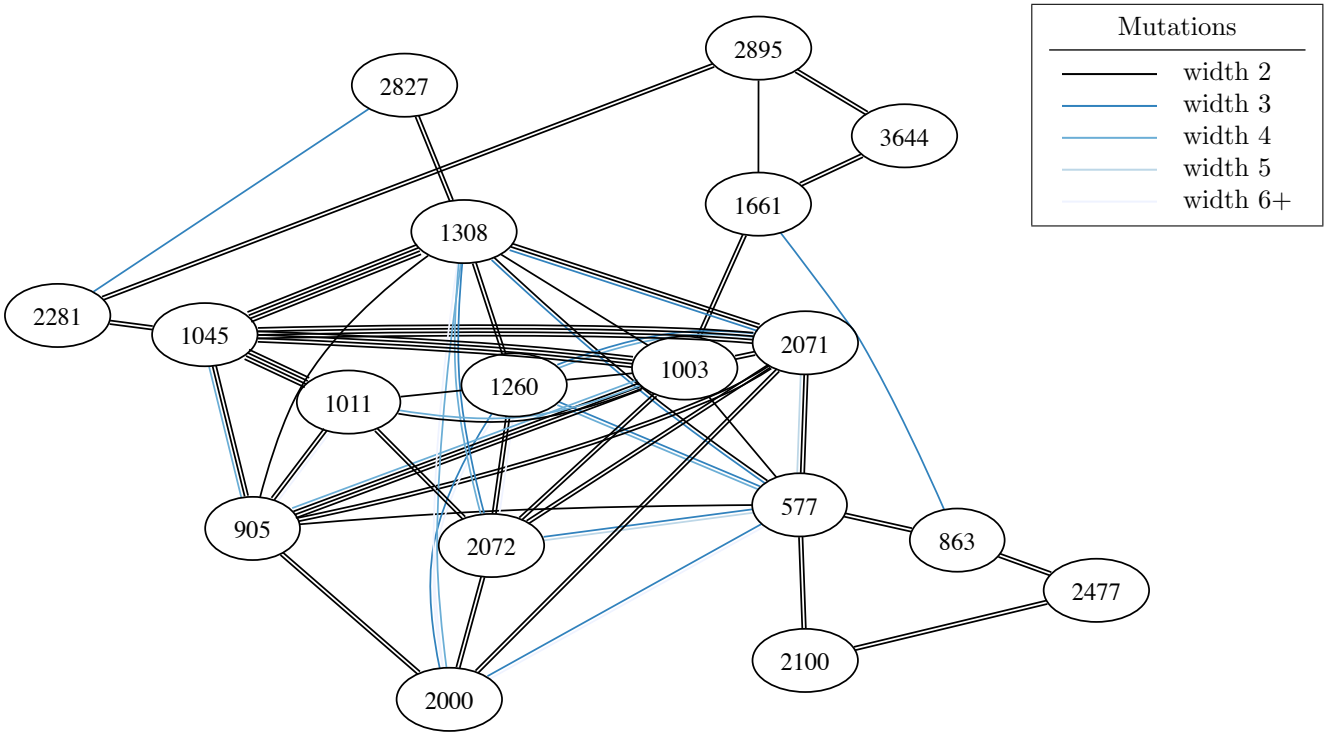

FIGURE 115B. All mutations between Minkowski polynomials in bucket 115

Bucket 116

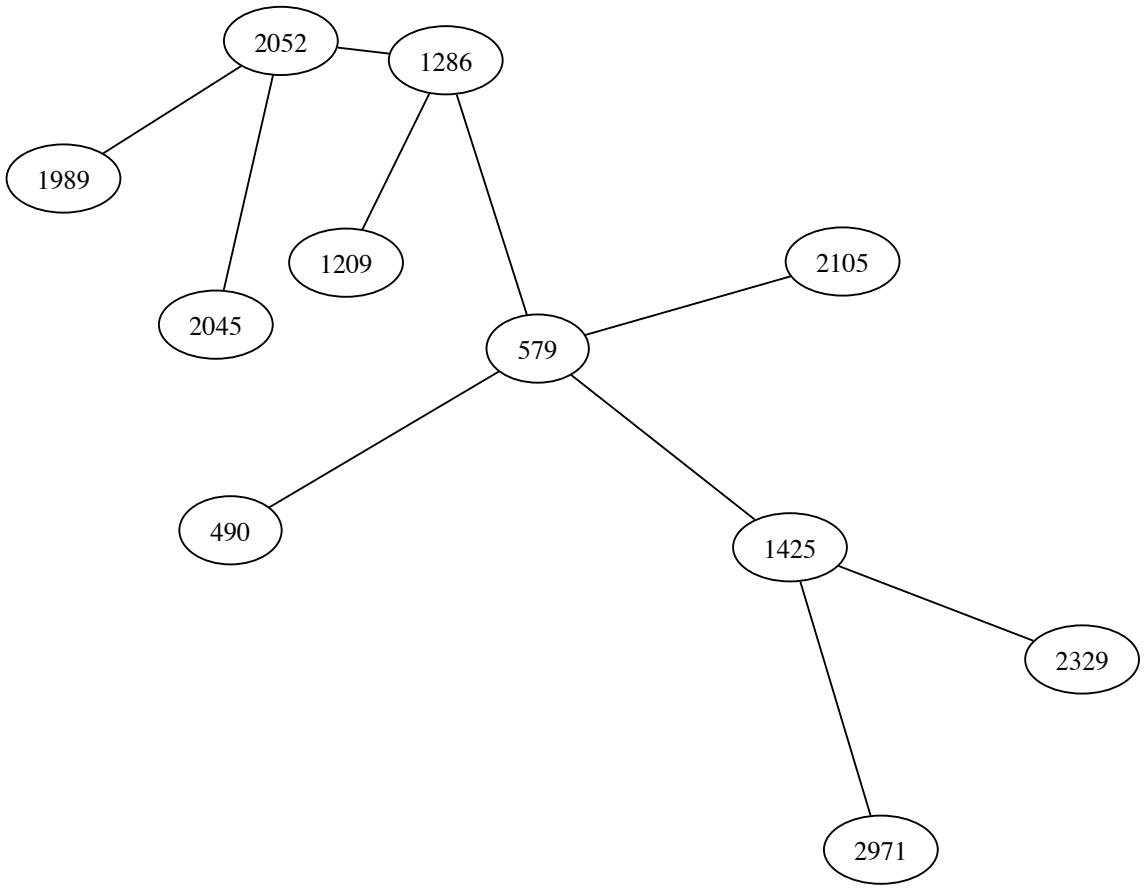

Figure 116a. Selected width-2 mutations between Minkowski polynomials in bucket 116

Table 116. Laurent polynomials and selected mutations for bucket 116.

Node	Laurent polynomial	Mutations from Figure 116a
490	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	579: $\left(x+y, \frac{x}{yz}, z\right)$
579	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	490: $\left(\frac{xyz}{yz+1}, \frac{x}{yz+1}, z\right)$ 1286: $\left(\frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2}, \frac{xyz+x+y}{y^3z}\right)$ 1425: $\left(\frac{x}{y}, \frac{x^2}{x+y}, \frac{x+y}{xyz}\right)$ 2105: $\left(y, \frac{xy^2}{(y+1)^2}, \frac{(y+1)^2}{xyz}\right)$
1209	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{1}{y}+\frac{2}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	1286: $\left(x, y, \frac{x+y}{y^3z}\right)$
1286	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{1}{y}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	579: $\left(\frac{x^3+xyz+y^2z}{xy^2z}, \frac{x^3+xyz+y^2z}{x^2yz}, \frac{x^4}{x^3+xyz+y^2z}\right)$ 1209: $\left(x, y, \frac{x+y}{y^3z}\right)$ 2052: $\left(\frac{x^2y}{xy+1}, \frac{x}{xy+1}, xyz(xy+1)\right)$
1425	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	579: $\left(\frac{y(x+1)}{x}, \frac{y(x+1)}{x^2}, \frac{x}{yz}\right)$ 2329: $\left(y, \frac{xy}{y+1}, z\right)$ 2971: $\left(y, \frac{xy^2}{(y+1)^2}, z\right)$
1989	$xz^2+2xz+x+\frac{xz^3}{y}+y+2z+\frac{4z^2}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{6z}{xy}+\frac{3}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^3z^2}+\frac{1}{x^3yz}$	2052: $\left(x, \frac{(xy+1)^2}{x^3yz}, y\right)$
2045	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{3}{x}+\frac{3z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{3y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^2y}$	2052: $\left(x, \frac{xy+1}{x^2z}, \frac{xy+1}{x^3yz}\right)$
2052	$x^2y^2z+xy^2+2xyz+2xy+x+2y+z+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	1286: $\left(x+y, \frac{x}{y(x+y)}, \frac{y^2z}{x(x+y)}\right)$ 1989: $\left(x, z, \frac{(xz+1)^2}{x^3yz}\right)$ 2045: $\left(x, \frac{y}{xz}, \frac{y+z}{x^2yz}\right)$
2105	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	579: $\left(\frac{y(x+1)^2}{x^2}, x, \frac{x}{yz}\right)$
2329	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1425: $\left(x, \frac{y(x+1)}{x}, z\right)$

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Table 116 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 116a
2971	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	$1425\colon \left(\frac{y(x+1)^2}{x^2}, x, z\right)$

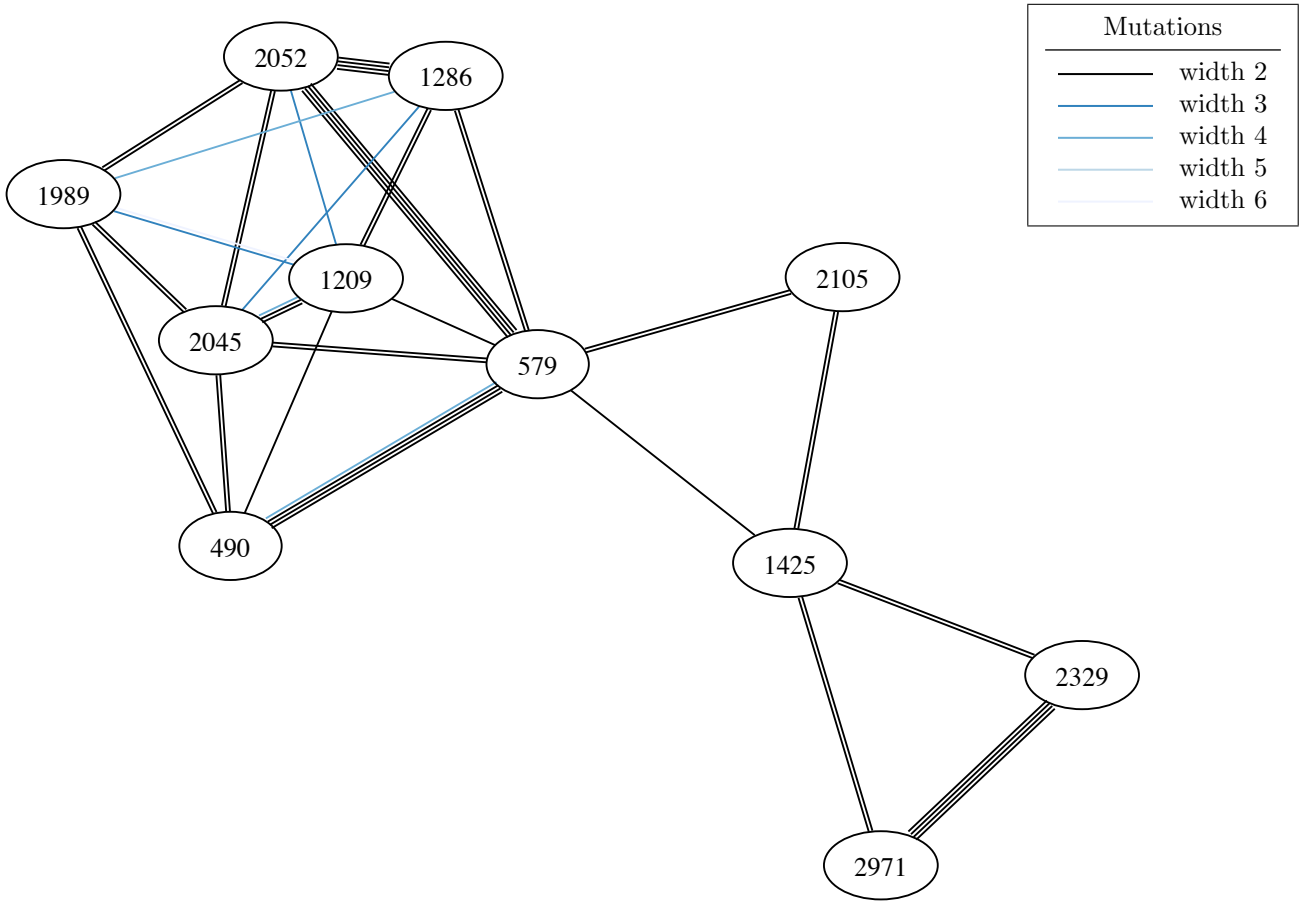

FIGURE 116B. All mutations between Minkowski polynomials in bucket 116

Bucket 117

Figure 117a. Selected width-2 mutations between Minkowski polynomials in bucket 117

Table 117. Laurent polynomials and selected mutations for bucket 117.

Node	Laurent polynomial	Mutations from Figure 117a
932	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	997: $\left(\frac{x+y}{xy},\frac{x+y}{x^2},\frac{yz}{x+y}\right)$ 1318: $\left(\frac{y^2z+(yz+1)^2}{xyz},\frac{y^2z+(yz+1)^2}{xy^2z^2},z\right)$ 1429: $\left(x,y,\frac{yz}{x+y}\right)$ 1788: $\left(\frac{x^2+xyz+y^2z}{xy^2z},\frac{x^2+xyz+y^2z}{x^2yz},\frac{x^2y}{x^2+xyz+y^2z}\right)$ 1829: $\left(\frac{x}{y},\frac{x^2}{x+y},z\right)$ 2466: $\left(\frac{x^2z}{xyz+xz+1},\frac{x}{xyz+xz+1},\frac{xyz+xz+1}{xy}\right)$
997	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	932: $\left(\frac{x+y}{xy},\frac{x+y}{x^2},\frac{z(x+y)}{y}\right)$ 1720: $\left(\frac{(yz+1)^2}{xyz},\frac{(yz+1)^2}{xy^2z^2},z\right)$ 1880: $\left(\frac{x}{y},\frac{x^2}{x+y},\frac{x+y}{y^2z}\right)$ 2600: $\left(y,\frac{xy^2}{(y+1)^2},\frac{(y+1)^2}{xz}\right)$
1318	$x+yz^2+2yz+y+z+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	932: $\left(\frac{x^2+z(x+y)^2}{x^2yz},\frac{x}{yz},z\right)$ 2196: $\left(\frac{x^2yz+(x+y)^2}{x^2y},\frac{x^2yz+(x+y)^2}{xy^3z},\frac{x^2y^2z}{x^2yz+(x+y)^2}\right)$ 2905: $\left(\frac{x}{z+1},\frac{xz}{z+1},\frac{z+1}{xy}\right)$
1357	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1829: $\left(\frac{(x+y)(xz+x+y)}{x^2yz},\frac{(x+y)(xz+x+y)}{x^2y},\frac{x}{y}\right)$ 2625: $\left(y,\frac{xy}{y+1},z\right)$
1429	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	932: $\left(x,y,\frac{z(x+y)}{y}\right)$
1437	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1829: $\left(\frac{(z+1)(x+y)}{xy},\frac{(z+1)(x+y)}{xyz},\frac{x}{y}\right)$ 1861: $\left(y,\frac{yz+(z+1)^2}{xz},z\right)$ 2166: $\left(z,y,\frac{y+z(y+1)^2}{xyz}\right)$ 2321: $\left(\frac{(z+1)^2}{xz},y,z\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
1501	$x+\frac{xz}{y}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1829: $\left(\frac{xz}{z+1},\frac{x}{y},\frac{z+1}{y}\right)$ 1909: $\left(\frac{x}{y},\frac{xz+x+yz}{xyz},\frac{1}{z}\right)$ 1911: $\left(y,z,\frac{xz}{y+z+1}\right)$ 1931: $\left(\frac{x+1}{y},x,z\right)$ 2326: $\left(\frac{(y+1)^2}{xy},y,z\right)$ 2559: $\left(y,\frac{xy}{yz+y+1},\frac{1}{z}\right)$ 2686: $\left(y,\frac{yz+(y+1)^2}{xy},\frac{yz+(y+1)^2}{xyz}\right)$
1720	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{y^2z}{x}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	997: $\left(\frac{(x+y)^2}{x^2y},\frac{x}{yz},z\right)$
1773	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2z}$	1911: $\left(x,y,\frac{xy+x+y}{xz}\right)$ 3240: $\left(\frac{(y+z+1)^2}{xyz},\frac{(y+z+1)^2}{xy},y\right)$
1788	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	932: $\left(\frac{x^2z+x+y}{xy},\frac{x^2z+x+y}{x^2},\frac{1}{yz}\right)$
1829	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	932: $\left(\frac{y(x+1)}{x},\frac{y(x+1)}{x^2},z\right)$ 1357: $\left(\frac{(z+1)(xz+x+yz)}{xyz},\frac{(z+1)(xz+x+yz)}{xyz^2},\frac{y}{x}\right)$ 1437: $\left(\frac{(z+1)(x+y)}{xy},\frac{(z+1)(x+y)}{xyz},\frac{x}{y}\right)$ 1501: $\left(\frac{xz+y}{z},\frac{xz+y}{yz},\frac{xz}{y}\right)$ 2296: $\left(x,y,\frac{z(x+y)}{x}\right)$ 2479: $\left(\frac{xy}{y+1},\frac{x}{y+1},z\right)$ 2622: $\left(x,y,\frac{(x+y)^2}{x^2yz}\right)$ 3204: $\left(y,\frac{xy^2z}{1+z(y+1)^2},z\right)$
1861	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	1437: $\left(\frac{xz+(z+1)^2}{yz},x,z\right)$
1880	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	997: $\left(\frac{y(x+1)}{x},\frac{y(x+1)}{x^2},\frac{x^2}{yz}\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
1900	$x+\frac{x}{z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	1931: $\left(\frac{x(y+1)}{y}, y, \frac{z(y+1)}{y}\right)$
1909	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1501: $\left(\frac{xz+x+1}{y}, \frac{xz+x+1}{xy}, \frac{1}{z}\right)$ 2171: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 2697: $\left(x, \frac{xy}{x+1}, z\right)$ 3302b: $\left(y, \frac{xy^2}{(y+1)^2}, z\right)$
1911	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1501: $\left(\frac{z(x+y+1)}{y}, x, y\right)$ 1773: $\left(x, y, \frac{xy+x+y}{xz}\right)$ 2542: $\left(z, y, \frac{(y+1)(yz+y+z)}{xyz}\right)$
1931	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	1501: $\left(y, \frac{y+1}{x}, z\right)$ 1900: $\left(\frac{xy}{y+1}, y, \frac{yz}{y+1}\right)$ 1938: $\left(\frac{y+1}{x}, y, \frac{yz}{x}\right)$ 2330: $\left(\frac{xz}{z+1}, y, \frac{x}{z+1}\right)$ 2351: $\left(\frac{y+z+1}{x}, y, z\right)$ 3016: $\left(\frac{xyz}{(z+1)(y+1)}, y, \frac{xy}{(z+1)(y+1)}\right)$ 3018: $\left(\frac{(y+1)(y+z+1)}{xy}, y, z\right)$
1938	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	1931: $\left(\frac{y+1}{x}, y, \frac{z(y+1)}{xy}\right)$
2166	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1437: $\left(\frac{y+x(y+1)^2}{xyz}, y, x\right)$ 2627: $\left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$ 3255: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$ 3272: $\left(\frac{x^2z}{xz+1}, y, \frac{xz+1}{x}\right)$ 3841: $\left(\frac{(y+1)(xyz+(y+1)^2)}{xy^2}, y, \frac{x^2y^2z}{(y+1)(xyz+(y+1)^2)}\right)$
2167	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2321: $\left(x, \frac{z(y+1)}{y}, y\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
2171	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1909: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 2643: $\left(x, \frac{xy}{x+1}, \frac{x+1}{xz}\right)$ 2844: $\left(x, \frac{x^2y}{(x+1)^2}, \frac{(x+1)^2}{x^2z}\right)$
2196	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	1318: $\left(\frac{xy^2z^3+(yz+1)^2}{xyz}, \frac{xy^2z^3+(yz+1)^2}{xy^2z^2}, \frac{x^2y^2z^3}{xy^2z^3+(yz+1)^2}\right)$
2269	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2321: $\left(x, \frac{y+1}{z}, y\right)$
2288	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	2692: $\left(y, \frac{(y+1)(yz+y+1)}{xy}, \frac{(y+1)(yz+y+1)}{xy^2z}\right)$ 2917: $\left(x, y, \frac{xy+(x+1)^2}{x^2z}\right)$ 3285: $\left(y, \frac{xy}{y+z}, \frac{1}{z}\right)$
2296	$x+\frac{x}{y}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1829: $\left(x, y, \frac{xz}{x+y}\right)$ 2620: $\left(x, \frac{xy^2z}{xyz+yz+1}, \frac{1}{yz}\right)$ 2692: $\left(x, \frac{xy}{x+1}, \frac{1}{yz}\right)$ 3459: $\left(y, \frac{xy^2}{(y+1)(y+z+1)}, z\right)$
2321	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1437: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 2167: $\left(x, z, \frac{yz}{z+1}\right)$ 2269: $\left(x, z, \frac{z+1}{y}\right)$ 3195: $\left(y, z, \frac{(z+1)(yz+y+1)}{xyz}\right)$
2326	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1501: $\left(\frac{(y+1)^2}{xy}, y, z\right)$
2330	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	1931: $\left(x+z, y, \frac{x}{z}\right)$ 3022: $\left(x, y, \frac{xz}{x+1}\right)$
2335	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	2692: $\left(y, \frac{(y+1)(yz+1)}{xyz}, \frac{xy}{(y+1)(yz+1)}\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
2351	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	$1931\colon \left(\frac{y+z+1}{x}, y, z\right)$ $3302a\colon \left(y, \frac{xyz}{yz+z+1}, z\right)$
2466	$xz^2+2xz+x+\frac{xz^2}{y}+yz+y+2z+\frac{2z}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	$932\colon \left(\frac{xyz+x+y^2z}{yz}, \frac{1}{yz}, \frac{xz}{xyz+x+y^2z}\right)$ $3147\colon (x, y(xz+1)^2, z)$
2479	$x+y+z+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$1829\colon \left(x+y, \frac{x}{y}, z\right)$ $2929\colon \left(x, y, \frac{z(y+1)}{y}\right)$ $3241\colon \left(x, y, \frac{(y+1)^2}{xyz}\right)$ $3424\colon \left(x, y, \frac{xyz}{xy+(y+1)^2}\right)$
2542	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	$1911\colon \left(\frac{(y+1)(xy+x+y)}{xyz}, y, x\right)$
2559	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	$1501\colon \left(\frac{y(xz+x+z)}{xz}, x, z\right)$ $3091\colon \left(x, z, \frac{xz+(z+1)^2}{xyz}\right)$
2590	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	$2686\colon \left(x, y, \frac{xyz}{xy+y+1}\right)$ $3426\colon \left(\frac{(xyz+(y+1)^2)(xyz+xz+y)}{x^2y^2z}, y, \frac{(xyz+(y+1)^2)(xyz+xz+y)}{x^3yz^2}\right)$
2600	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$997\colon \left(\frac{y(x+1)^2}{x^2}, x, \frac{x^2}{yz}\right)$
2620	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^3z^2}$	$2296\colon \left(\frac{y(x+z+1)}{x}, x, \frac{1}{xz}\right)$
2622	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	$1829\colon \left(x, y, \frac{(x+y)^2}{x^2yz}\right)$
2625	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	$1357\colon \left(\frac{y(x+1)}{x}, x, z\right)$
2627	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	$2166\colon \left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$ $3123\colon \left(z, \frac{(yz+z+1)^2}{xyz^2}, y\right)$
2643	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	$2171\colon \left(x, \frac{y(x+1)}{x}, \frac{x+1}{xz}\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
2686	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1501: $\left(\frac{xy+z(x+1)^2}{xyz}, x, \frac{y}{z}\right)$ 2590: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$ 3234: $\left(x, y, \frac{(y+1)(xy+y+1)}{xyz}\right)$
2692	$x+\frac{x}{y}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2288: $\left(\frac{(x+1)(xz+y+z)}{xyz}, x, \frac{y}{xz}\right)$ 2296: $\left(x, \frac{y(x+1)}{x}, \frac{x}{yz(x+1)}\right)$ 2335: $\left(\frac{(x+1)(x+yz)}{xy}, x, \frac{1}{yz}\right)$ 3284: $\left(\frac{(y+1)(xz+y)(xyz+xz+y)}{x^2y^2z}, y, \frac{1}{xz}\right)$
2697	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1909: $\left(x, \frac{y(x+1)}{x}, z\right)$
2844	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	2171: $\left(x, \frac{y(x+1)^2}{x^2}, \frac{(x+1)^2}{x^2z}\right)$
2905	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	1318: $\left(x+y, \frac{1}{xz}, \frac{y}{x}\right)$
2917	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	2288: $\left(x, y, \frac{xy+(x+1)^2}{x^2z}\right)$
2929	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2479: $\left(x, y, \frac{yz}{y+1}\right)$
3016	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1931: $\left(\frac{(y+1)(x+z)}{y}, y, \frac{x}{z}\right)$
3018	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1931: $\left(\frac{(y+1)(y+z+1)}{xy}, y, z\right)$ 3715: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$
3022	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2330: $\left(x, y, \frac{z(x+1)}{x}\right)$
3091	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2559: $\left(x, \frac{xy+(y+1)^2}{xyz}, y\right)$ 3907: $\left(\frac{(xz+y+1)(xy^2z+(y+1)^3)}{x^2y^2z}, \frac{x^3y^2z^2}{(xz+y+1)(xy^2z+(y+1)^3)}, y\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
3123	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^2z^3}$	2627: $\left(\frac{(xz+x+1)^2}{x^2yz}, z, x\right)$
3147	$x^2yz^3+x^2yz^2+4xyz^2+2xyz+xz^2+2xz+x+6yz+y+2z+\frac{4y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	2466: $\left(x, \frac{y}{(xz+1)^2}, z\right)$
3195	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2321: $\left(\frac{(y+1)(xy+x+1)}{xyz}, x, y\right)$ 4129: $\left(\frac{x^3y^2z^2}{(xyz+y+1)^2}, \frac{(xyz+y+1)^2}{x^2y^2z}, y\right)$
3204	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	1829: $\left(\frac{y(1+z(x+1)^2)}{x^2z}, x, z\right)$
3234	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2686: $\left(x, y, \frac{(y+1)(xy+y+1)}{xyz}\right)$
3240	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{5}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	1773: $\left(\frac{(xz+x+y)^2}{x^2yz}, z, \frac{y}{x}\right)$
3241	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	2479: $\left(x, y, \frac{(y+1)^2}{xyz}\right)$
3255	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{1}{x^3yz^2}$	2166: $\left(\frac{xyz+(y+1)^2}{xy}, y, \frac{x^2yz}{xyz+(y+1)^2}\right)$
3272	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2166: $\left(\frac{xz+1}{z}, y, \frac{xz^2}{xz+1}\right)$
3284	$x+\frac{xz}{y}+\frac{xz}{y^2}+y+z+\frac{3z}{y}+\frac{3}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{5}{xy}+\frac{2}{xy^2}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2692: $\left(\frac{(y+1)(yz+1)(yz+y+1)}{xy^2z}, y, \frac{xy^2}{(y+1)(yz+1)(yz+y+1)}\right)$
3285	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2288: $\left(\frac{y(xz+1)}{xz}, x, \frac{1}{z}\right)$
3302a	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2351: $\left(\frac{y(xz+z+1)}{xz}, x, \frac{1}{z}\right)$

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Table 117 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 117a
3302b	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	1909: $\left(\frac{y(x+1)^2}{x^2}, x, z\right)$
3424	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{10}{x^2z}+\frac{10}{x^2yz}+\frac{5}{x^2y^2z}+\frac{1}{x^2y^3z}$	2479: $\left(x, y, \frac{z(xy+(y+1)^2)}{xy}\right)$
3426	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2590: $\left(\frac{(xy+x+z)(xy^2+z(y+1)^2)}{x^2y^2z}, y, \frac{x^3y^3}{(xy+x+z)(xy^2+z(y+1)^2)}\right)$
3459	$x+y+z+\frac{2z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{6}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{xy^2z}$	2296: $\left(\frac{y(x+1)(x+z+1)}{x^2}, x, z\right)$
3715	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	3018: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
3841	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{5}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2y}{x^2z}+\frac{7}{x^2z}+\frac{7}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{3}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	2166: $\left(\frac{(y+1)(xyz+(y+1)^2)}{xy^2}, y, \frac{x^2y^2z}{(y+1)(xyz+(y+1)^2)}\right)$
3907	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{10}{x^2z}+\frac{7}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3091: $\left(\frac{(xy+z+1)(xyz^2+(z+1)^3)}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xy+z+1)(xyz^2+(z+1)^3)}\right)$
4129	$x+y+z+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{5}{xy}+\frac{5}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2y}{x^2z}+\frac{9}{x^2z}+\frac{14}{x^2yz}+\frac{9}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{y}{x^3z^2}+\frac{5}{x^3z^2}+\frac{10}{x^3yz^2}+\frac{10}{x^3y^2z^2}+\frac{5}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3195: $\left(\frac{(xyz+z+1)^2}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+z+1)^2}\right)$

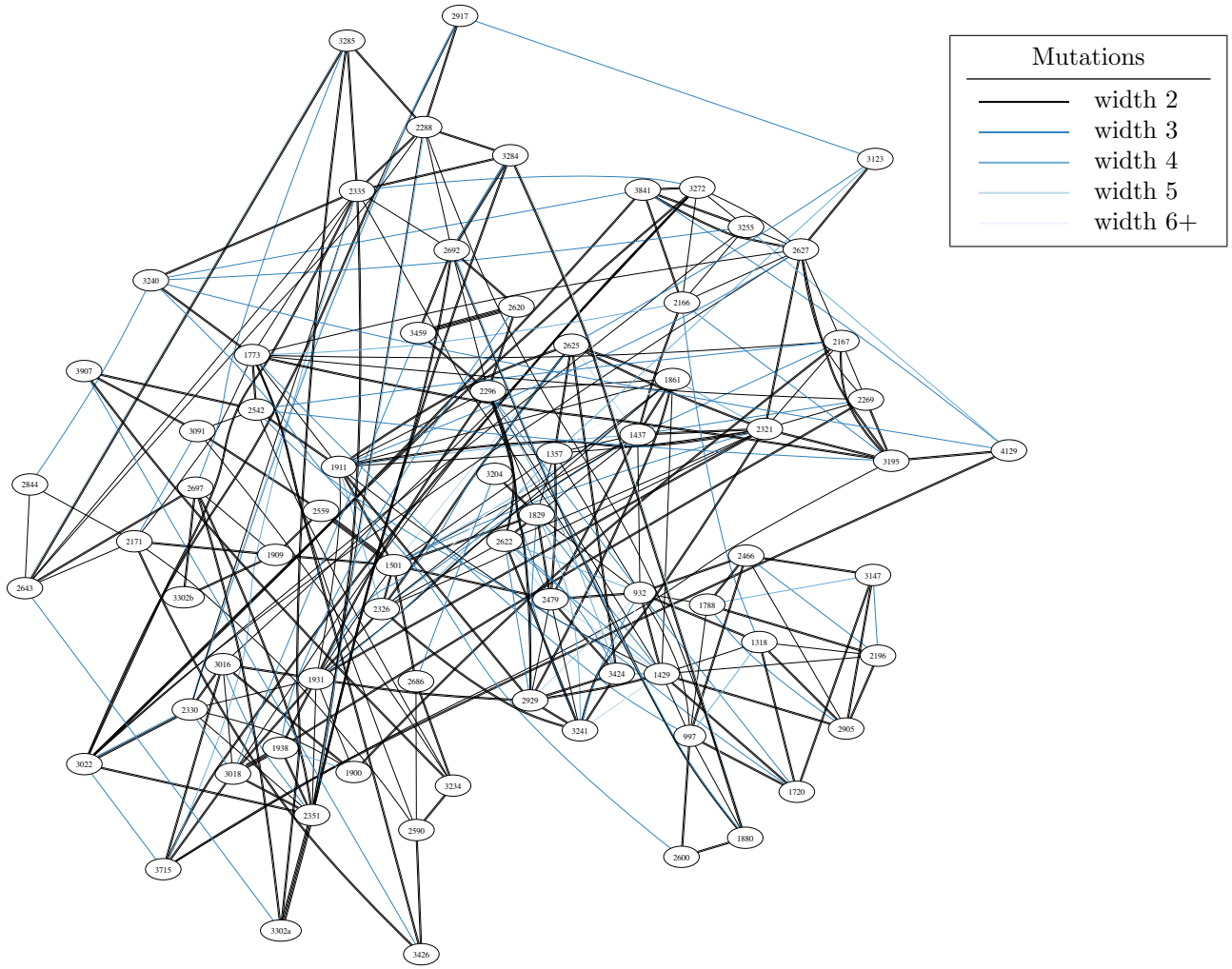

Figure 117b. All mutations between Minkowski polynomials in bucket 117

Bucket 118

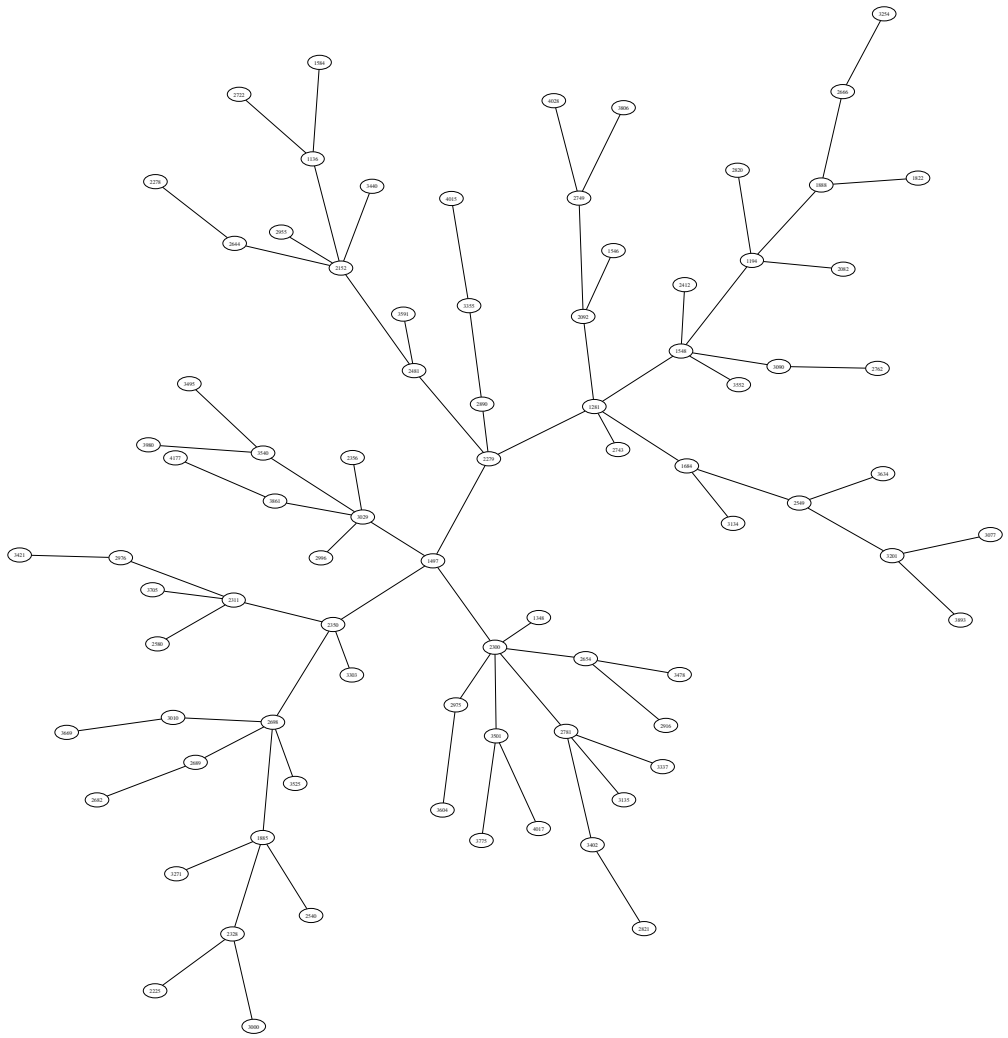

Figure 118a. Selected width-2 mutations between Minkowski polynomials in bucket 118

Table 118. Laurent polynomials and selected mutations for bucket 118.

Node	Laurent polynomial	Mutations from Figure 118a
1136	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{1}{x^2yz^2}$	1584: $\left(\frac{xz+yz+1}{y}, \frac{xz+yz+1}{x^2z}, \frac{xyz}{xz+yz+1}\right)$ 2152: $\left(x, \frac{1}{y+z}, \frac{z}{y}\right)$ 2722: $\left(\frac{(xy+1)(1+xy(z+1)^2)}{x^2y}, \frac{x^3y^2z^2}{(xy+1)(1+xy(z+1)^2)}, \frac{1}{z}\right)$
1194	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	1548: $\left(\frac{x}{yz+1}, \frac{y}{yz+1}, \frac{xyz}{yz+1}\right)$ 1888: $\left(z, \frac{xyz}{yz+y+z}, \frac{yz+y+z}{x}\right)$ 2082: $\left(\frac{x+z}{xz}, \frac{x+z}{x^2}, y\right)$ 2820: $\left(z, \frac{yz+1}{x}, \frac{xyz}{yz+1}\right)$
1281	$\frac{x^2y^2}{z}+2xy+\frac{2xy}{z}+x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{1}{x}+\frac{2z}{xy}+\frac{z^2}{xy^2}$	1548: $\left(\frac{xy}{xyz+x+y^2z}, \frac{xyz+x+y^2z}{x^2}, \frac{xyz+x+y^2z}{x^2yz}\right)$ 1684: $\left(\frac{y+z}{y^2}, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$ 2092: $\left(y, \frac{x^2z}{xz+(xyz+1)^2}, \frac{x}{xz+(xyz+1)^2}\right)$ 2279: $\left(\frac{x^2yz}{(x+y)(x+yz)}, \frac{1}{z}, \frac{xy^2}{(x+y)(x+yz)}\right)$ 2743: $\left(\frac{(x^2yz+1)(x^3yz^2+x^2yz+1)}{x^5y^2z^2}, \frac{x^6y^2z^3}{(x^2yz+1)(x^3yz^2+x^2yz+1)}, \frac{x^4yz^2}{(x^2yz+1)(x^3yz^2+x^2yz+1)}\right)$
1348	$\frac{x^3}{y^2z^3}+\frac{x^2}{yz}+\frac{3x^2}{yz^2}+x+\frac{3x}{z}+\frac{2x}{yz}+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{x^2}$	2300: $\left(y, \frac{x^2z}{xz+y}, \frac{xz+y}{x}\right)$
1497	$\frac{x^2}{yz}+x+\frac{x}{y}+\frac{2x}{yz}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{y}{x}+\frac{1}{x}+\frac{y^2z}{x^2}$	2279: $\left(\frac{xy}{xz+y}, \frac{1}{z}, \frac{x^2z}{xz+y}\right)$ 2300: $\left(\frac{1}{y}, \frac{yz+y+z}{xyz}, \frac{xy}{yz+y+z}\right)$ 2350: $\left(\frac{x}{y}, \frac{x}{yz}, \frac{z(x+y)}{xy}\right)$ 3029: $\left(\frac{1}{z}, \frac{y}{z}, \frac{x}{(y+1)^2}\right)$
1546	$xz^2+2xz+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+2z+\frac{3}{z}+\frac{2}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{1}{x}$	2092: $\left(\frac{y}{yz+1}, \frac{x}{yz+1}, \frac{yz+1}{xyz}\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
1548	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xyz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	1194: $\left(\frac{z(x+y)}{x}, x+y, \frac{x}{y(x+y)}\right)$ 1281: $\left(\frac{xy^2+y+z}{yz}, \frac{x(xy^2+y+z)}{z}, \frac{y}{x(xy^2+y+z)}\right)$ 2412: $\left(x, y+z, \frac{y}{z(y+z)}\right)$ 3090: $\left(x, \frac{(y+z)^2}{yz^2}, \frac{z^3}{(y+z)^2}\right)$ 3552: $\left(y, \frac{xy^2}{xz+(y+1)^2}, \frac{z(xz+(y+1)^2)}{y^2}\right)$
1584	$x+\frac{xz}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1136: $\left(\frac{xyz^2+xz+1}{xyz}, \frac{xyz^2+xz+1}{x}, \frac{x^2yz^2}{xyz^2+xz+1}\right)$
1684	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	1281: $\left(y+z, \frac{y+z}{xy}, \frac{z(y+z)}{xy^2}\right)$ 2549: $\left(\frac{z(x+y)}{x}, y, x\right)$ 3134: $\left(\frac{xyz^2}{z+x(z+1)^2}, z, x\right)$
1822	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{1}{x^2z}$	1888: $\left(x, \frac{x+1}{y}, \frac{z(x+1)}{x}\right)$
1885	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	2328: $\left(y, \frac{y+z}{x}, z\right)$ 2540: $\left(\frac{(y+z+1)^2}{xy}, \frac{(y+z+1)^2}{xyz}, \frac{(y+z+1)^2}{xz}\right)$ 2698: $\left(\frac{x+y}{yz}, y, x\right)$ 3271: $\left(y, \frac{(y+z)(yz+y+z)}{xyz}, z\right)$
1888	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1194: $\left(\frac{x^2+xyz+yz}{xz}, \frac{yz}{x}, x\right)$ 1822: $\left(x, \frac{x+1}{y}, \frac{xz}{x+1}\right)$ 2666: $\left(y, z, \frac{(y+1)^2}{xy}\right)$
2082	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}$	1194: $\left(\frac{x+y}{xy}, z, \frac{x+y}{x^2}\right)$
2092	$xy^2z^2+2xyz+x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	1281: $\left(\frac{yz+(xy+z)^2}{z}, x, \frac{y}{yz+(xy+z)^2}\right)$ 1546: $\left(\frac{yz+1}{z}, \frac{x(yz+1)}{yz}, \frac{1}{x(yz+1)}\right)$ 2749: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{(yz+1)(x+y)}{x^2yz}, \frac{x^2}{(yz+1)(x+y)}\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
2152	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{y^2}{x^2z}$	1136: $\left(x, \frac{1}{y(z+1)}, \frac{z}{y(z+1)}\right)$ 2481: $\left(\frac{xz+y^2+yz}{y^2z}, \frac{xz+y^2+yz}{xy^2}, \frac{xz+y^2+yz}{x^2y}\right)$ 2644: $\left(\frac{xz+yz+1}{y}, \frac{x}{y}, \frac{x^2z}{xz+yz+1}\right)$ 2955: $\left(\frac{x^2}{x+y}, \frac{1}{z}, \frac{x+y}{xyz}\right)$ 3440: $\left(\frac{(xyz+xz+1)^2}{x^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+1)^2}\right)$
2225	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	2328: $\left(x, \frac{(x+1)^2}{xz}, \frac{(x+1)^2}{xy}\right)$
2278	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	2644: $\left(x, \frac{xyz}{xz+x+1}, \frac{xz+x+1}{y}\right)$
2279	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1281: $\left(\frac{(xy+z)(xy^2+z)}{yz}, \frac{(xy+z)(xy^2+z)}{xy^2}, \frac{1}{y}\right)$ 1497: $\left(x+z, \frac{x(x+z)}{yz}, \frac{1}{y}\right)$ 2481: $\left(y, x, \frac{xy}{z(xy+x+y)}\right)$ 2890: $\left(\frac{x^2z}{xz+y}, \frac{xy}{xz+y}, \frac{1}{y}\right)$
2300	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1348: $\left(\frac{x+yz}{z}, x, \frac{yz^2}{x+yz}\right)$ 1497: $\left(\frac{x+yz+1}{y}, \frac{1}{x}, \frac{1}{yz}\right)$ 2654: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{x}{y}, \frac{x^2yz}{(yz+1)(x+y)}\right)$ 2781: $\left(x, \frac{xy^2z}{(yz+1)(xyz+1)}, \frac{xy^3z^2}{(yz+1)(xyz+1)}\right)$ 2975: $\left(\frac{(z+1)^2}{yz}, z, \frac{xz^2}{(z+1)^2}\right)$ 3501: $\left(\frac{x^3z^2}{(xz+y)^2}, \frac{1}{y}, \frac{(xz+y)^2}{x^2y^2z}\right)$
2311	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	2350: $\left(x, \frac{x+y}{yz}, y\right)$ 2580: $\left(\frac{xy}{x+1}, z, x\right)$ 2976: $\left(\frac{y+z+1}{x}, y, z\right)$ 3705: $\left(\frac{xy^2z}{(y+1)(yz+1)}, z, y\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
2328	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	1885: $\left(\frac{x+z}{y}, x, z\right)$ 2225: $\left(x, \frac{(x+1)^2}{xz}, \frac{(x+1)^2}{xy}\right)$ 3000: $\left(y, \frac{xyz}{(z+1)(y+1)}, z\right)$
2350	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1497: $\left(\frac{x(x+1)}{yz}, \frac{x+1}{yz}, \frac{x}{y}\right)$ 2311: $\left(x, z, \frac{x+z}{yz}\right)$ 2698: $\left(x, y, \frac{yz}{y+1}\right)$ 3303: $\left(y, z, \frac{xyz}{(z+1)(y+z)}\right)$
2356	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{yz}{x^2}$	3029: $\left(y, \frac{xyz}{(z+1)(y+1)}, \frac{y}{z}\right)$
2412	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	1548: $\left(x, \frac{y^2z}{yz+1}, \frac{y}{yz+1}\right)$
2481	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2152: $\left(\frac{xz^2+y^3+y^2z}{xyz^2}, \frac{xz^2+y^3+y^2z}{xy^2z}, \frac{xz^2+y^3+y^2z}{x^2z^2}\right)$ 2279: $\left(y, x, \frac{xy}{z(xy+x+y)}\right)$ 3591: $\left(\frac{(xz^2+y+z)(xy^2+y+z)}{x^2yz^2}, \frac{(xz^2+y+z)(xy^2+y+z)}{x^2y^2z}, \frac{(xz^2+y+z)(xy^2+y+z)}{x^3y^2z^2}\right)$
2540	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	1885: $\left(\frac{(x+y+z)^2}{xyz}, \frac{z}{y}, \frac{x}{y}\right)$
2549	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{z}{x^2}$	1684: $\left(x, y, \frac{xz}{x+y}\right)$ 3201: $\left(\frac{x^2z}{(x+1)^2}, x, \frac{x^2}{y(x+1)^2}\right)$ 3634: $\left(\frac{xy^3}{(y+1)^2(y+z)}, y, \frac{xy^2z}{(y+1)^2(y+z)}\right)$
2580	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2311: $\left(z, \frac{x(z+1)}{z}, y\right)$
2644	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	2152: $\left(\frac{xyz+xz+y^2}{xy}, \frac{xyz+xz+y^2}{xy^2}, \frac{x^2z}{xyz+xz+y^2}\right)$ 2278: $\left(x, \frac{x+yz+1}{z}, \frac{yz}{x}\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
2654	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	2300: $\left(\frac{(y+1)(xz+y)}{xy}, \frac{(y+1)(xz+y)}{xy^2}, \frac{x^2yz}{(y+1)(xz+y)}\right)$ 2916: $\left(\frac{xyz+(xz+1)^2}{x^2z}, y, \frac{xz}{y}\right)$ 3478: $\left(\frac{(yz+1)(y^2z+(yz+1)^2)}{xy^2z^2}, y, z\right)$
2666	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1888: $\left(\frac{(x+1)^2}{xz}, x, y\right)$ 3254: $\left(z, x, \frac{(x+1)^2}{xy}\right)$
2682	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2689: $\left(\frac{z(xy+1)}{xy}, x, y\right)$
2689	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	2682: $\left(z, y, \frac{xyz}{yz+1}\right)$ 2698: $\left(x, \frac{yz+1}{y}, \frac{x(yz+1)}{y^2z}\right)$
2698	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	1885: $\left(y, z, \frac{y+z}{xz}\right)$ 2350: $\left(x, y, \frac{z(y+1)}{y}\right)$ 2689: $\left(\frac{xy+z}{yz}, x, \frac{y}{z}\right)$ 3010: $\left(\frac{yz+y+1}{x}, y, z\right)$ 3525: $\left(\frac{(yz+1)(yz+y+1)}{xyz}, y, z\right)$
2722	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	1136: $\left(\frac{xy+1}{y}, \frac{xy^2z^2}{xy+1}, \frac{1}{z}\right)$
2743	$x^3yz^3+3x^2yz^2+3xyz+xz^2+2xz+x+y+5z+\frac{7}{x}+\frac{3}{x^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{5}{x^3yz}+\frac{3}{x^4yz^2}+\frac{1}{x^5y^2z^2}+\frac{1}{x^6y^2z^3}$	1281: $\left(\frac{(y+z)(xy^2+y+z)}{xy^2}, \frac{y^2}{z(y+z)(xy^2+y+z)}, \frac{x^2y^3}{(y+z)(xy^2+y+z)}\right)$
2749	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xyz}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2092: $\left(\frac{(yz+1)(xz+1)}{xyz}, \frac{(yz+1)(xz+1)}{x^2yz^2}, \frac{x^2z}{(yz+1)(xz+1)}\right)$ 3806: $\left(x, \frac{(yz+1)^2}{yz^2}, \frac{y^2z^3}{(yz+1)^2}\right)$ 4028: $\left(x, \frac{x^2y^3z^2}{(xyz+yz+1)^2}, \frac{(xyz+yz+1)^2}{x^2y^2z}\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
2762	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{2y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	3090: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$
2781	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{4}{xy}+\frac{2}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{x^2y}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	2300: $\left(x, \frac{(y+z)(xz+y)}{xz}, \frac{xz^2}{y(y+z)(xz+y)}\right)$ 3135: $\left(\frac{x^2}{x+y}, \frac{x+y}{xz}, \frac{z}{y}\right)$ 3337: $\left(\frac{x^3z^2}{(xz+1)^2}, \frac{(xz+1)^2}{x^2yz^2}, yz\right)$ 3402: $\left(\frac{x+y+z}{xz}, \frac{x^2}{x+y+z}, \frac{y}{x}\right)$
2820	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1194: $\left(\frac{yz+1}{y}, \frac{yz}{x}, x\right)$
2821	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	3402: $\left(\frac{x^2}{x+z}, \frac{x+z}{xz}, \frac{xy}{x+z}\right)$
2890	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	2279: $\left(x+y, \frac{1}{z}, \frac{x}{yz(x+y)}\right)$ 3355: $\left(x, \frac{x^2z}{y(x^2z+(xz+1)^2)}, \frac{1}{y(x^2z+(xz+1)^2)}\right)$
2916	$x+\frac{xz}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2654: $\left(\frac{y^2z+(yz+1)^2}{xyz}, y, \frac{xy^2z^2}{y^2z+(yz+1)^2}\right)$
2955	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	2152: $\left(\frac{xz+y}{z}, \frac{y(xz+y)}{xz^2}, \frac{1}{y}\right)$
2975	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	2300: $\left(\frac{z(y+1)^2}{y^2}, \frac{(y+1)^2}{xy}, y\right)$ 3604: $\left(x, y, \frac{(x+y)(xy+x+y)}{x^2yz}\right)$
2976	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2311: $\left(\frac{y+z+1}{x}, y, z\right)$ 3421: $\left(x, \frac{(xz+z+1)^2}{xyz^2}, z\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
2996	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3029: $\left(x, \frac{y(z+1)}{z}, \frac{1}{z}\right)$
3000	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	2328: $\left(\frac{y(z+1)(x+1)}{xz}, x, z\right)$
3010	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2698: $\left(\frac{yz+y+1}{x}, y, z\right)$ 3669: $\left(y, z, \frac{(y+z+1)(yz+z+1)}{xyz^2}\right)$
3029	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1497: $\left(\frac{z(x+y)^2}{x^2}, \frac{y}{x}, \frac{1}{x}\right)$ 2356: $\left(\frac{y(x+1)(x+z)}{x^2}, x, \frac{x}{z}\right)$ 2996: $\left(x, \frac{y}{z+1}, \frac{1}{z}\right)$ 3540: $\left(x, \frac{xz+y+z}{xyz}, \frac{z}{y}\right)$ 3861: $\left(x, \frac{xyz}{(z+1)(x+z+1)}, z\right)$
3077	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	3201: $\left(x, z, \frac{xz+(x+1)^2}{xyz}\right)$
3090	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{2}{z}+\frac{1}{y}+\frac{2y}{xz}+\frac{2y}{xz^2}+\frac{4}{x}+\frac{4}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	1548: $\left(x, \frac{(yz+1)^2}{y^3z^2}, \frac{(yz+1)^2}{y^2z}\right)$ 2762: $\left(y+z, \frac{xy}{y+z}, \frac{xz}{y+z}\right)$
3134	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+\frac{2x}{yz^2}+\frac{x}{yz^3}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{3}{yz^2}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{x^2y}$	1684: $\left(z, \frac{x(y+z(y+1)^2)}{y^2z}, y\right)$
3135	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	2781: $\left(\frac{xyz+1}{yz}, \frac{xyz+1}{xy^2z^2}, \frac{xyz+1}{xy^2z}\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
3201	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2549: $\left(y, \frac{y^2}{z(y+1)^2}, \frac{x(y+1)^2}{y^2}\right)$ 3077: $\left(x, \frac{xz+(x+1)^2}{xyz}, z\right)$ 3893: $\left(y, \frac{(yz+1)(yz+(y+1)^2)}{xy^2z^2}, z\right)$
3254	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	2666: $\left(y, \frac{(y+1)^2}{yz}, x\right)$
3271	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1885: $\left(\frac{(x+z)(xz+x+z)}{xyz}, x, z\right)$
3303	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2350: $\left(\frac{z(y+1)(x+y)}{xy}, x, y\right)$
3337	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{1}{x^2yz^2}+\frac{4y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	2781: $\left(\frac{(xyz+1)^2}{xy^2z^2}, \frac{(xyz+1)^2}{x^2y^3z^2}, \frac{x^2y^3z^3}{(xyz+1)^2}\right)$
3355	$xz^2+2xz+x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{4y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	2890: $\left(x, \frac{x^2z}{x^2yz+(xz+y)^2}, \frac{y}{x^2z}\right)$ 4015: $\left(\frac{(xy+(xz+1)^2)(x^3yz^2+(xz+1)^2)}{x^4yz^2}, \frac{(xy+(xz+1)^2)(x^3yz^2+(xz+1)^2)}{x^5y^2z^2}, \frac{x^5yz^3}{(xy+(xz+1)^2)(x^3yz^2+(xz+1)^2)}\right)$
3402	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{4}{x}+\frac{2z^2}{xy}+\frac{5z}{xy}+\frac{2z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	2781: $\left(\frac{xyz+xy+1}{x}, \frac{z(xyz+xy+1)}{x}, \frac{xyz+xy+1}{x^2y}\right)$ 2821: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy+1}{xy^2}\right)$
3421	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	2976: $\left(x, \frac{(xz+z+1)^2}{xyz^2}, z\right)$
3440	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{6}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{4}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2152: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, \frac{x^3z^2}{(xyz+xz+y^2)^2}\right)$
3478	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{6}{xy^2z}+\frac{2}{xy^2z^2}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^3}$	2654: $\left(\frac{(yz+1)(y^2z+(yz+1)^2)}{xy^2z^2}, y, z\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
3495	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{6}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^3z^2}$	3540: $\left(\frac{(xyz+y+z)^2}{x^2y^2z},\frac{(xyz+y+z)^2}{x^2yz^2},\frac{x^3y^2z^2}{(xyz+y+z)^2}\right)$
3501	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{y^3}{x^3z^2}+\frac{2y^2}{x^3z^2}+\frac{y}{x^3z^2}$	2300: $\left(\frac{(xz+y)^2}{xz^2},\frac{1}{y},\frac{x^2z^3}{y^2(xz+y)^2}\right)$ 3775: $\left(x,\frac{xyz+(yz+1)^2}{xz},\frac{xyz+(yz+1)^2}{x^2yz^2}\right)$ 4017: $\left(x,\frac{x^3z^2}{y(xz+1)(x^2z+(xz+1)^2)},\frac{x^3z^3}{y(xz+1)(x^2z+(xz+1)^2)}\right)$
3525	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^3z^2}$	2698: $\left(\frac{(yz+1)(yz+y+1)}{xyz},y,z\right)$
3540	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	3029: $\left(x,\frac{xz+z+1}{xyz},\frac{xz+z+1}{xy}\right)$ 3495: $\left(\frac{(xyz+x+y)^2}{x^2y^2z},\frac{x^3y^2z^2}{(xyz+x+y)^2},\frac{x^2y^3z^2}{(xyz+x+y)^2}\right)$ 3980: $\left(\frac{(y+1)(xz+y+1)^2}{x^2yz},\frac{x^3z^2}{(y+1)(xz+y+1)^2},\frac{x^3yz^2}{(y+1)(xz+y+1)^2}\right)$
3552	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{2z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{3}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{2}{xyz}+\frac{6}{xy^2}+\frac{3}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	1548: $\left(\frac{y(yz+(x+1)^2)}{x^2},x,\frac{x^2z}{yz+(x+1)^2}\right)$
3591	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2y}{x^2z^2}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	2481: $\left(\frac{(xz+y^2+yz)(x^2+xz+yz)}{x^2y^2z},\frac{x^3y^2}{(xz+y^2+yz)(x^2+xz+yz)},\frac{x^2y^3}{(xz+y^2+yz)(x^2+xz+yz)}\right)$
3604	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{4}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{6y}{x^2z}+\frac{6}{x^2z}+\frac{2y^2}{x^3z}+\frac{4y}{x^3z}+\frac{y^2}{x^4z}$	2975: $\left(x,y,\frac{(x+y)(xy+x+y)}{x^2yz}\right)$
3634	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{2z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{6z}{xy^2}+\frac{3}{xy^2}+\frac{2z^2}{xy^3}+\frac{3z}{xy^3}+\frac{z^2}{xy^4}$	2549: $\left(\frac{(y+1)^2(x+z)}{y^2},y,\frac{yz}{x}\right)$
3669	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3010: $\left(\frac{(x+y+1)(xy+y+1)}{xy^2z},x,y\right)$
3705	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2311: $\left(\frac{x(z+1)(yz+1)}{yz^2},y,z\right)$

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Table 118 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 118a
3775	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{6y^2z}{x}+\frac{6yz}{x}+\frac{6y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y^4z^3}{x^2}+\frac{5y^3z^2}{x^2}+\frac{10y^2z}{x^2}+\frac{10y}{x^2}+\frac{5}{x^2z}+\frac{1}{x^2yz^2}$	3501: $\left(x, \frac{x^2y^2z}{x^2yz+(xz+y)^2}, \frac{x^2yz+(xz+y)^2}{x^3yz^2}\right)$
3806	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{6}{xz}+\frac{5}{xyz}+\frac{6}{xyz^2}+\frac{2}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{y}{x^2}+\frac{4}{x^2z}+\frac{6}{x^2yz^2}+\frac{4}{x^2y^2z^3}+\frac{1}{x^2y^3z^4}$	2749: $\left(x, \frac{y^3z^2}{(yz+1)^2}, \frac{(yz+1)^2}{y^2z}\right)$
3861	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	3029: $\left(x, \frac{y(z+1)(x+z+1)}{xz}, z\right)$ 4177: $\left(\frac{(xyz+(y+1)^2)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+(y+1)^2)^2}, y\right)$
3893	$x+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{8}{xyz}+\frac{4}{xyz^2}+\frac{3}{xy^2}+\frac{8}{xy^2z}+\frac{6}{xy^2z^2}+\frac{3}{xy^3z}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^2}$	3201: $\left(\frac{(xz+1)(xz+(x+1)^2)}{x^2yz^2}, x, z\right)$
3980	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{9y}{x^2z}+\frac{9}{x^2z}+\frac{3}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{4y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{4}{x^3z^2}+\frac{1}{x^3yz^2}$	3540: $\left(\frac{(y+z)(xyz+y+z)^2}{x^2y^2z^2}, \frac{z}{y}, \frac{x^3y^2z^3}{(y+z)(xyz+y+z)^2}\right)$
4015	$xz^2+2xz+x+y+2z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{6z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2}{x^2z}+\frac{8}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3355: $\left(\frac{(x+y(xz+1)^2)(x^3z^2+y(xz+1)^2)}{x^4yz^2}, \frac{x^5z^2}{(x+y(xz+1)^2)(x^3z^2+y(xz+1)^2)}, \frac{x^5yz^3}{(x+y(xz+1)^2)(x^3z^2+y(xz+1)^2)}\right)$
4017	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{6yz}{x}+\frac{8y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{15y}{x^2}+\frac{12y}{x^2z}+\frac{y}{x^2z^2}+\frac{6}{x^2z}+\frac{20y}{x^3z}+\frac{8y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{15y}{x^4z^2}+\frac{2y}{x^4z^3}+\frac{6y}{x^5z^3}+\frac{y}{x^6z^4}$	3501: $\left(x, \frac{x^3z^2}{(xz+y)(x^2yz+(xz+y)^2)}, \frac{z}{y}\right)$
4028	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{8}{xy}+\frac{5}{xyz}+\frac{12}{xy^2z}+\frac{2}{xy^2z^2}+\frac{8}{xy^3z^2}+\frac{2}{xy^4z^3}+\frac{z}{x^2}+\frac{5}{x^2y}+\frac{10}{x^2y^2z}+\frac{10}{x^2y^3z^2}+\frac{5}{x^2y^4z^3}+\frac{1}{x^2y^5z^4}$	2749: $\left(x, \frac{(xyz+yz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$
4177	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{6}{x}+\frac{6}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}+\frac{3y^2}{x^2z}+\frac{12y}{x^2z}+\frac{18}{x^2z}+\frac{12}{x^2yz}+\frac{3}{x^2y^2z}+\frac{y^3}{x^3z^2}+\frac{6y^2}{x^3z^2}+\frac{15y}{x^3z^2}+\frac{20}{x^3z^2}+\frac{15}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	3861: $\left(\frac{(xyz+(z+1)^2)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+(z+1)^2)^2}\right)$

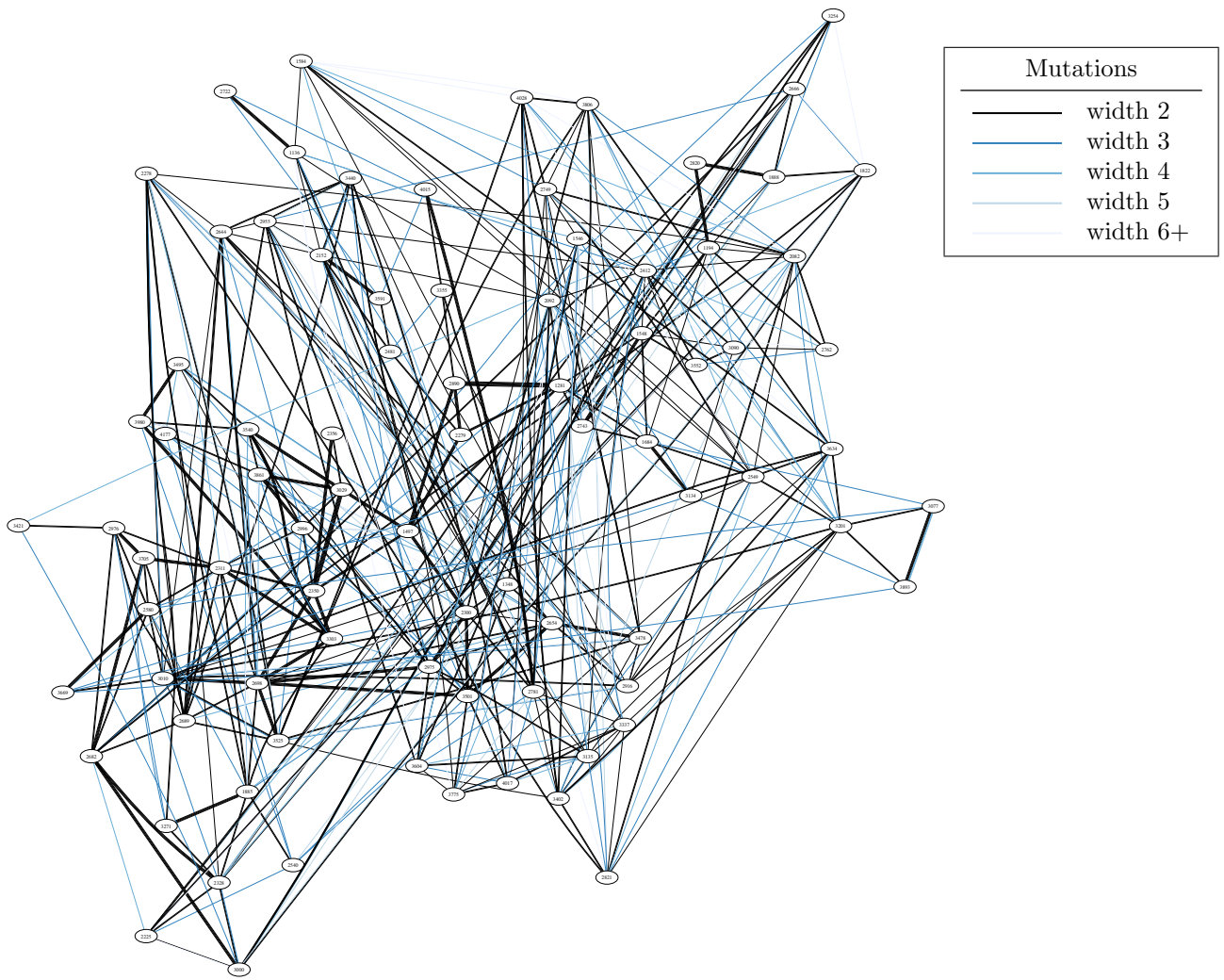

FIGURE 118B. All mutations between Minkowski polynomials in bucket 118

Bucket 119

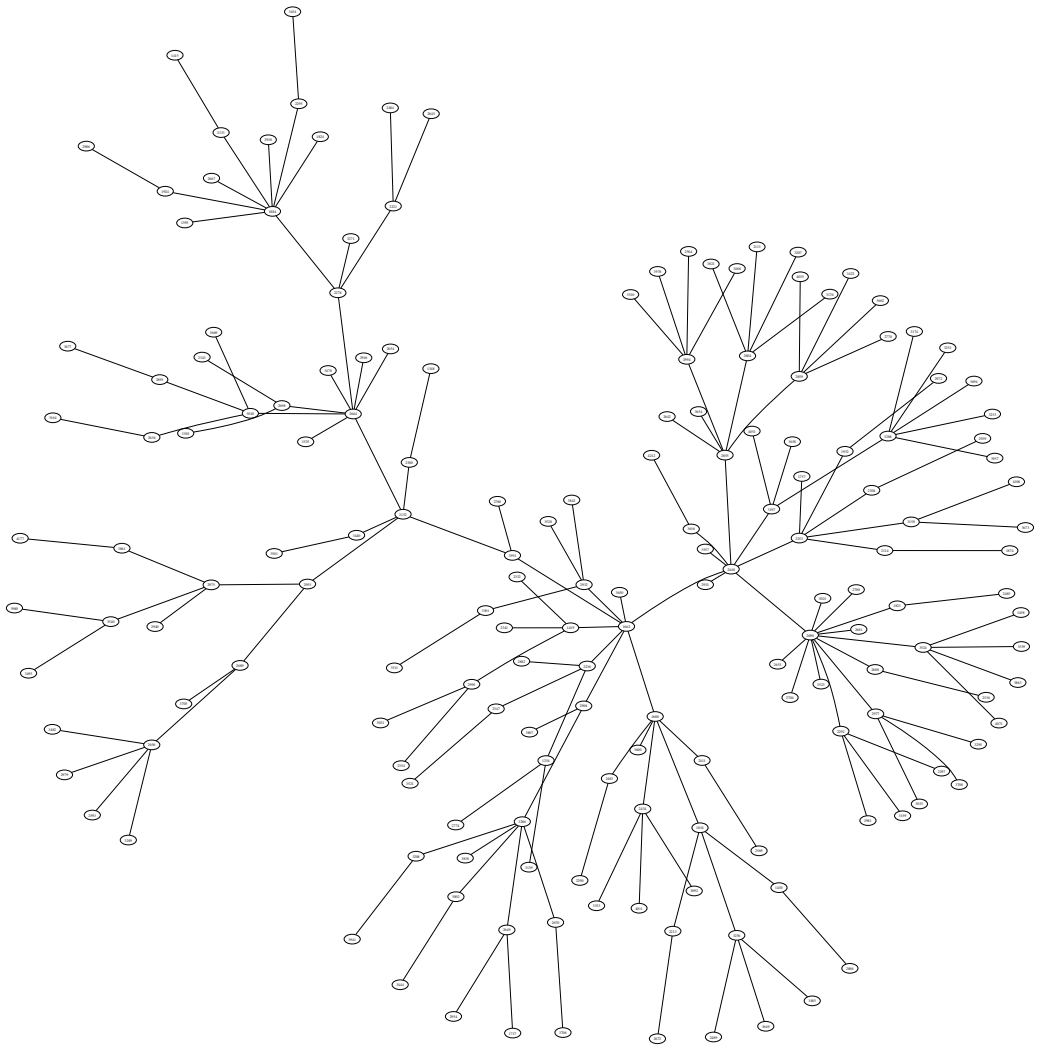

Figure 119a. Selected width-2 mutations between Minkowski polynomials in bucket 119

Table 119. Laurent polynomials and selected mutations for bucket 119.

Node	Laurent polynomial	Mutations from Figure 119a
1254	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y^2z}{x^2}$	2236: $\left(x, \frac{x}{y}, \frac{yz}{y+1}\right)$ 2774: $\left(\frac{x^2yz}{xyz+xz+y}, \frac{x^2z}{xyz+xz+y}, \frac{xyz+xz+y}{xy}\right)$ 3139: $\left(y, \frac{xy^2z+(xz+y)^2}{x^2yz}, \frac{xy^2}{xy^2z+(xz+y)^2}\right)$
1348	$\frac{x^3}{y^2z^3}+\frac{x^2}{yz}+\frac{3x^2}{yz^2}+x+\frac{3x}{z}+\frac{3x}{yz}+y+z+\frac{1}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{x^2}$	2300: $\left(y, \frac{x^2z}{xz+y}, \frac{xz+y}{x}\right)$
1393	$xy+x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1884: $\left(\frac{z+1}{y}, x, z\right)$
1415	$x+\frac{xz}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	2333: $\left(\frac{(y+1)^2}{xy}, z, y\right)$
1419	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2}$	1662: $\left(y, \frac{y^2+yz+z}{xyz}, z\right)$ 2332: $\left(\frac{x}{y}, \frac{1}{z}, \frac{x^2}{x+y}\right)$ 2341: $\left(z, \frac{y}{x}, \frac{z(x+y)}{xy}\right)$ 2995: $\left(y, \frac{1}{z}, \frac{y(z+1)^2}{xz}\right)$
1430	$\frac{x^2}{yz}+x+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	1834: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 2886: $\left(\frac{xyz}{yz^2+yz+1}, \frac{x}{yz^2+yz+1}, y\right)$
1662	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{xy^2}$	1419: $\left(\frac{x^2+xz+z}{xyz}, x, z\right)$ 1680: $\left(\frac{yz+1}{y}, x, \frac{y^2z}{yz+1}\right)$ 2236: $\left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$ 2448: $\left(\frac{(y+1)^2}{y^2z}, y, \frac{xy^2}{(y+1)^2}\right)$ 2904: $\left(\frac{(x+y)(xz+1)}{x^2}, \frac{x}{y}, \frac{x^3z}{(x+y)(xz+1)}\right)$ 2932: $\left(\frac{x^2}{x+y}, z, \frac{z(x+y)}{xy}\right)$ 3591: $\left(\frac{(y+z)(xy^2+y+z)}{xy^2}, \frac{x^2y^2z}{(y+z)(xy^2+y+z)}, \frac{x^2y^3}{(y+z)(xy^2+y+z)}\right)$ 3650: $\left(\frac{(y+1)^2(xz+1)}{xy^2}, y, \frac{x^2y^2z}{(y+1)^2(xz+1)}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
1680	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	1662: $\left(y, \frac{xz+1}{x}, \frac{x^2z}{xz+1}\right)$ 1834: $\left(\frac{x^2+xyz+y^2z}{xy^2z}, \frac{x^2+xyz+y^2z}{x^2yz}, z\right)$ 2411: $\left(\frac{x^2yz}{xyz+x+y}, \frac{x^2}{xyz+x+y}, \frac{z(xyz+x+y)}{x}\right)$ 2434: $\left(\frac{(x^2z^2+xyz+y)^2}{x^2y^2z}, \frac{(x^2z^2+xyz+y)^2}{x^3y^2z^2}, y\right)$ 2483: $\left(\frac{xy}{y+z}, \frac{y^2}{y+z}, \frac{x(y+z)}{y^2z}\right)$ 3600: $\left(\frac{x^3y^3z}{(xy^2+z)(xy^2+xyz+z)}, \frac{x^3y^4}{(xy^2+z)(xy^2+xyz+z)}, \frac{(xy^2+z)(xy^2+xyz+z)}{x^2y^3}\right)$
1717	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2649: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$
1757	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	2253: $\left(x, \frac{xy}{x+z}, z\right)$
1821	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2485: $\left(x, z, \frac{x+z(x+1)^2}{xyz}\right)$ 2690: $\left(x, \frac{z(y+1)}{y}, y\right)$
1824	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	1884: $\left(\frac{(z+1)^2}{yz}, \frac{(z+1)^2}{xz}, z\right)$
1834	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	1430: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$ 1680: $\left(\frac{x^2+xyz+y^2z}{xy^2z}, \frac{x^2+xyz+y^2z}{x^2yz}, z\right)$ 2213: $\left(z, \frac{xz+yz+y}{xy}, \frac{x^2z}{xz+yz+y}\right)$ 3256: $\left(y, \frac{(y+z)(y^2+yz+z)}{xyz}, \frac{xy^3}{(y+z)(y^2+yz+z)}\right)$
1874	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{yz}{x^2}$	2114: $\left(y, \frac{xyz}{yz+z+1}, \frac{yz+z+1}{x}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
1884	$x+\frac{xz}{y}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1393: $\left(y, \frac{z+1}{x}, z\right)$ 1824: $\left(\frac{(z+1)^2}{yz}, \frac{(z+1)^2}{xz}, z\right)$ 1924: $\left(\frac{y+1}{z}, \frac{y+1}{x}, y\right)$ 2278: $\left(y, x, \frac{yz}{y+1}\right)$ 2295: $\left(\frac{(x+y)(x+yz)}{x^2y}, \frac{(x+y)(x+yz)}{xy^2z}, \frac{x}{y}\right)$ 2333: $\left(\frac{y+1}{z}, x, y\right)$ 2667: $\left(\frac{(y+z)^2}{xyz}, y, \frac{y}{z}\right)$ 2938: $\left(\frac{xz}{y+z+1}, \frac{xy}{y+z+1}, y\right)$
1924	$\frac{xy}{z}+x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xy}$	1884: $\left(\frac{z+1}{y}, z, \frac{z+1}{x}\right)$ 2986: $\left(y, \frac{xyz}{(y+1)(y+z)}, z\right)$
1932	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2253: $\left(y, \frac{y+z+1}{x}, z\right)$ 2972: $\left(\frac{xy}{yz+y+1}, \frac{1}{z}, y\right)$
2113	$x+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	2604: $\left(\frac{y(z+1)}{z}, z, \frac{x}{z+1}\right)$
2114	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1874: $\left(\frac{xyz+x+yz}{xz}, x, \frac{yz}{x}\right)$ 2253: $\left(x, \frac{(z+1)^2}{yz}, z\right)$
2152	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{y^2}{x^2z}$	2300: $\left(x, \frac{xyz}{xz+y}, \frac{xz^2}{xz+y}\right)$ 2644: $\left(\frac{xz+yz+1}{y}, \frac{x}{y}, \frac{x^2z}{xz+yz+1}\right)$ 2955: $\left(\frac{x^2}{x+y}, \frac{1}{z}, \frac{x+y}{xyz}\right)$ 3440: $\left(\frac{(xyz+xz+1)^2}{x^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+1)^2}\right)$ 3591: $\left(\frac{x^2y^2}{xy^2+y+z}, \frac{xy}{xy^2+y+z}, \frac{xz}{xy^2+y+z}\right)$
2213	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	1834: $\left(\frac{x+yz+1}{y}, \frac{x(x+yz+1)}{y^2z}, x\right)$ 2672: $\left(x, \frac{z+1}{y}, z\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2221	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}$	2278: $\left(\frac{x+y(x+1)^2}{xyz}, y, x\right)$ 2484: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 2645: $\left(x, \frac{xy+xz+y}{y^2}, \frac{xy+xz+y}{xyz}\right)$
2236	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{y}{x^2z}$	1254: $\left(x, \frac{x}{y}, \frac{z(x+y)}{x}\right)$ 1662: $\left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$ 2347: $\left(\frac{xy+yz+z}{xz}, \frac{xy+yz+z}{xyz}, \frac{x}{z}\right)$ 2882: $\left(y, \frac{y}{z}, \frac{(z+1)^2(y+z)}{xyz^2}\right)$
2253	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	1757: $\left(x, \frac{y(x+z)}{x}, z\right)$ 1932: $\left(\frac{x+z+1}{y}, x, z\right)$ 2114: $\left(x, \frac{(z+1)^2}{yz}, z\right)$ 2304: $\left(x, \frac{y+1}{z}, y\right)$ 2448: $\left(\frac{x^2}{x+yz}, y, \frac{xyz}{x+yz}\right)$ 3158: $\left(y, \frac{xyz}{yz+y+z}, z\right)$
2278	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	1884: $\left(y, x, \frac{z(x+1)}{x}\right)$ 2221: $\left(z, y, \frac{z+y(z+1)^2}{xyz}\right)$ 2644: $\left(x, \frac{xyz}{xz+x+1}, \frac{xz+x+1}{y}\right)$ 3271: $\left(z, y, \frac{xz}{y+z}\right)$
2290	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	2483: $\left(x, y, \frac{x^2}{z(xy+x+y)}\right)$
2292	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2297: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 2690: $\left(x, \frac{x+z}{y}, z\right)$ 2981: $\left(x, z, \frac{x+z}{yz}\right)$ 3159: $\left(\frac{(y+z+1)(y^2+yz+z)}{xyz}, \frac{(y+z+1)(y^2+yz+z)}{xy^2z}, \frac{(y+z+1)(y^2+yz+z)}{xy^2}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2295	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	1884: $\left(\frac{(z+1)(x+y)}{xy},\frac{(z+1)(x+y)}{xyz},\frac{xz}{y}\right)$ 3454: $\left(y,\frac{(z+1)(yz+z+1)}{xz},\frac{xyz^2}{(z+1)(yz+z+1)}\right)$
2297	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2292: $\left(x,y,\frac{z(xy+x+y)}{xy}\right)$
2300	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1348: $\left(\frac{x+yz}{z},x,\frac{yz^2}{x+yz}\right)$ 2152: $\left(x,\frac{y(xz+y)}{xz},\frac{xz+y}{x}\right)$
2304	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2253: $\left(x,z,\frac{z+1}{y}\right)$ 2939: $\left(y,\frac{(z+1)^2}{xz},z\right)$
2332	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1419: $\left(\frac{z(x+1)}{x},\frac{z(x+1)}{x^2},\frac{1}{y}\right)$
2333	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}$	1415: $\left(\frac{(z+1)^2}{xz},z,y\right)$ 1884: $\left(y,z,\frac{z+1}{x}\right)$
2336	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2688: $\left(x,\frac{x+z+1}{y},z\right)$
2341	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1419: $\left(\frac{x(y+1)}{yz},\frac{x(y+1)}{z},x\right)$
2343	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2698: $\left(y,x,\frac{xy+x+y}{xyz}\right)$
2347	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{xy^2}$	2236: $\left(\frac{xz+x+y}{xy},\frac{x}{y},\frac{xz+x+y}{xyz}\right)$ 3521: $\left(y,\frac{(y+z)(y+z+1)}{xyz},\frac{(y+z)(y+z+1)}{xy}\right)$
2354	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	2995: $\left(y,\frac{(z+1)(y+1)}{xz},\frac{xy}{(z+1)(y+1)}\right)$
2411	$x+yz^2+2yz+y+z+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1680: $\left(\frac{xyz+x+y^2z}{yz},\frac{x(xyz+x+y^2z)}{y^3z^2},\frac{y^2z^2}{xyz+x+y^2z}\right)$ 2569: $\left(x,\frac{xyz^2}{xyz+yz+1},\frac{xyz+yz+1}{xz}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2434	$\frac{x^2z^2}{y}+\frac{x^2z^3}{y^2}+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	1680: $\left(\frac{(x^2+xyz+y^2z)^2}{x^2y^3z^2}, z, \frac{x^3y^2z^2}{(x^2+xyz+y^2z)^2}\right)$ 3092: $\left(\frac{x^2}{x+y}, \frac{z(x+y)}{x}, \frac{yz(x+y)}{x^2}\right)$ 3353: $\left(\frac{x^2}{x+y^2z+y}, \frac{z(x+y^2z+y)}{x}, \frac{yz(x+y^2z+y)}{x^2}\right)$ 4011: $\left(\frac{xy^2}{(y+z)(xz^2+y+z)}, \frac{(y+z)(xz^2+y+z)}{y}, \frac{z(y+z)(xz^2+y+z)}{y^2}\right)$
2448	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	1662: $\left(\frac{z(y+1)^2}{y^2}, y, \frac{(y+1)^2}{xy^2}\right)$ 2253: $\left(x+z, y, \frac{z(x+z)}{xy}\right)$ 2690: $\left(\frac{(y+1)(x+z)}{xz}, y, \frac{(y+1)(x+z)}{x^2y}\right)$ 2855: $\left(x, \frac{xy+xz+y}{xyz}, \frac{xy^2}{xy+xz+y}\right)$ 2931: $\left(x, z, \frac{xy}{x+z+1}\right)$ 3197: $\left(x, y, \frac{y+1}{yz}\right)$ 3557: $\left(y, \frac{(xyz+xz+y)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+xz+y)^2}\right)$ 3616: $\left(x, z, \frac{x^2y}{(x+z+1)^2}\right)$
2483	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	1680: $\left(\frac{x(x+y^2z)}{y^2z}, \frac{x+y^2z}{yz}, \frac{x(x+y^2z)}{y^3z^2}\right)$ 2290: $\left(x, y, \frac{x^2}{z(xy+x+y)}\right)$
2484	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3}{y}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	2221: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$
2485	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2}+\frac{1}{x^2y}$	1821: $\left(x, \frac{x+y(x+1)^2}{xyz}, y\right)$
2489	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{6}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	3256: $\left(x, y, \frac{z(y+1)^2}{y^2}\right)$
2564	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	2994: $\left(x, \frac{y(x+1)}{x}, z\right)$
2569	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	2411: $\left(x, \frac{xyz^2}{xyz+yz+1}, \frac{xyz+yz+1}{xz}\right)$
2593	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2656: $\left(x, z, \frac{(x+1)^2}{xy}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2604	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{x^2y}+\frac{z}{x^2y}$	2113: $\left(z(y+1), \frac{xy}{y+1}, y\right)$ 2855: $\left(\frac{x^2z}{xz+y}, y, \frac{xy}{xz+y}\right)$ 3176: $\left(\frac{(yz+1)^2}{y^2z}, \frac{xy^2z^2}{(yz+1)^2}, \frac{x}{y}\right)$ 3207: $\left(\frac{(y+1)(x+z)}{xz}, \frac{x^2y}{(y+1)(x+z)}, y\right)$ 3821: $\left(\frac{x^2yz}{xyz+(y+1)^2}, \frac{xyz+(y+1)^2}{xy}, y\right)$
2636	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3010: $\left(y, x, \frac{yz}{x+1}\right)$ 3164: $\left(\frac{(y+z+1)^2}{xyz}, y, \frac{1}{z}\right)$
2642	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2855: $\left(y, \frac{x^2yz}{xyz+xz+y}, \frac{xyz+xz+y}{xy}\right)$
2644	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{1}{xyz^2}+\frac{1}{x^2z}+\frac{1}{x^2yz^2}$	2152: $\left(\frac{xyz+xz+y^2}{xy}, \frac{xyz+xz+y^2}{xy^2}, \frac{x^2z}{xyz+xz+y^2}\right)$ 2278: $\left(x, \frac{x+yz+1}{z}, \frac{yz}{x}\right)$ 2654: $\left(\frac{y^2z}{yz+1}, x, \frac{yz+1}{y}\right)$ 2698: $\left(y, \frac{x(yz+1)}{yz}, z\right)$ 2916: $\left(\frac{x^2yz}{xyz+xz+1}, y, \frac{xyz+xz+1}{xy}\right)$ 3010: $\left(y, \frac{(yz+1)(yz+y+1)}{xyz}, z\right)$ 3478: $\left(\frac{xy^3z^2}{(yz+1)(y^2z+yz+1)}, y, \frac{(yz+1)(y^2z+yz+1)}{xy^2z}\right)$ 3525: $\left(y, \frac{(yz+1)^2(yz+y+1)}{xy^2z^2}, z\right)$
2645	$x+\frac{xz}{y}+\frac{x}{y}+\frac{xz}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{1}{x^2z}$	2221: $\left(x, \frac{xz+y+z}{yz}, \frac{xz+y+z}{xz^2}\right)$
2649	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1717: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$ 2954: $\left(x, y, \frac{(x+1)(x+y)^2}{x^2y^2z}\right)$ 3286: $\left(x, \frac{xy^2z}{xyz+yz+1}, \frac{xyz+yz+1}{xy}\right)$
2653	$x+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{3yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	2690: $\left(x, \frac{x^2y}{z(x+1)^2}, z\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2654	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	2644: $\left(y, \frac{xz+1}{z}, \frac{xz^2}{xz+1}\right)$
2656	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2593: $\left(x, \frac{(x+1)^2}{xz}, y\right)$ 2689: $\left(\frac{z(xy+x+1)}{xy}, x, y\right)$ 2979: $\left(x, \frac{(z+1)(x+1)}{yz}, z\right)$ 3289: $\left(y, z, \frac{(y+z+1)^2}{xyz}\right)$ 3482: $\left(y, \frac{xyz}{yz+z+1}, z\right)$
2667	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	1884: $\left(\frac{(z+1)^2}{xz}, y, \frac{y}{z}\right)$
2670	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	3286: $\left(x, \frac{x+yz+1}{y}, \frac{y^2z}{x+yz+1}\right)$ 3706: $\left(y, \frac{(yz+z+1)^2}{xyz^2}, z\right)$
2672	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	2213: $\left(x, \frac{z+1}{y}, z\right)$
2681	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2690: $\left(x, \frac{z(y+1)(x+1)}{xy}, y\right)$
2688	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	2336: $\left(x, \frac{x+z+1}{y}, z\right)$ 2690: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$
2689	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	2656: $\left(y, z, \frac{xyz}{yz+y+1}\right)$ 2955: $\left(\frac{x^2z}{xz+x+y}, \frac{xz+x+y}{xy}, z\right)$ 3705: $\left(z, y, \frac{xy^2z^2}{(yz+z+1)(yz+y+1)}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2690	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	1821: $\left(x, z, \frac{yz}{z+1}\right)$ 2292: $\left(x, \frac{x+z}{y}, z\right)$ 2448: $\left(\frac{(y+1)(x+yz)}{xyz}, y, \frac{(y+1)(x+yz)}{x^2}\right)$ 2653: $\left(x, \frac{yz(x+1)^2}{x^2}, z\right)$ 2681: $\left(x, z, \frac{xyz}{(z+1)(x+1)}\right)$ 2688: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 2700: $\left(x, \frac{x+1}{y}, \frac{x}{yz}\right)$ 2704: $\left(x, y, \frac{xz}{x+1}\right)$ 2977: $\left(y, \frac{xyz}{yz+y+1}, \frac{xy}{yz+y+1}\right)$ 3021: $\left(y, \frac{(y+1)(y+z)}{xy}, z\right)$ 3523: $\left(y, \frac{xy^2z}{(y+1)(yz+y+1)}, \frac{xy^2}{(y+1)(yz+y+1)}\right)$ 3524: $\left(y, \frac{xyz}{yz+y+z}, z\right)$
2698	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xyz}$	2343: $\left(y, x, \frac{xy+x+y}{xyz}\right)$ 2644: $\left(x, \frac{xyz}{xz+1}, \frac{xz+1}{y}\right)$ 3303: $\left(z, y, \frac{(y+z+1)(yz+y+z)}{xy^2z}\right)$
2700	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2690: $\left(x, \frac{x+1}{y}, \frac{xy}{z(x+1)}\right)$
2704	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2690: $\left(x, y, \frac{z(x+1)}{x}\right)$
2760	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{2y}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3591: $\left(\frac{(xy^2+y+z)(xy+(xz+1)^2)}{x^3yz^2}, \frac{(xy^2+y+z)(xy+(xz+1)^2)}{x^3y^2z}, \frac{x^4y^2z^2}{(xy^2+y+z)(xy+(xz+1)^2)}\right)$
2770	$x+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	2859: $\left(\frac{xyz+xy+z}{xz}, z, \frac{x^2y}{xyz+xy+z}\right)$
2774	$x+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}$	1254: $\left(\frac{xz+yz+1}{z}, \frac{x}{y}, \frac{xz^2}{xz+yz+1}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2855	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^2}$	2448: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xyz+x+yz}{xy^2z}\right)$ 2604: $\left(x+z, y, \frac{xy}{z(x+z)}\right)$ 2642: $\left(\frac{xyz+x+yz}{xz}, x, \frac{xyz^2}{xyz+x+yz}\right)$ 2859: $\left(\frac{(xy+x+z)^2}{x^2yz}, y, \frac{x^3y^2}{(xy+x+z)^2}\right)$ 2994: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}\right)$ 3654: $\left(\frac{(xz+y)(xyz+xz+y)^2}{x^3y^2z^2}, y, \frac{x^4y^2z^3}{(xz+y)(xyz+xz+y)^2}\right)$
2859	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{2z}{x^2y^2}+\frac{z^2}{x^3y^2}$	2770: $\left(\frac{xyz+xz+1}{x}, \frac{x^2yz}{xyz+xz+1}, y\right)$ 2855: $\left(\frac{(xyz+xz+y)^2}{x^2y^2z}, y, \frac{(xyz+xz+y)^2}{x^3yz^2}\right)$ 3422: $\left(\frac{(yz+1)^2}{y^2z}, \frac{xy^2z^2}{(yz+1)^2}, \frac{x}{y}\right)$ 3662: $\left(\frac{(x+z)(xy+x+z)}{x^2z}, \frac{x^3y}{(x+z)(xy+x+z)}, y\right)$ 4035: $\left(\frac{x^3yz^2}{xz+y(xz+1)^2}, \frac{xz+y(xz+1)^2}{x^2yz}, y\right)$
2882	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2236: $\left(\frac{(y+1)(x+y)^2}{x^2yz}, x, y\right)$
2886	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	1430: $\left(\frac{x^2+xyz+y^2z}{yz}, \frac{x}{yz}, z\right)$
2893	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3010: $\left(x, \frac{xy+(y+1)^2}{y^2z}, y\right)$ 3677: $\left(\frac{(yz+z+1)(yz+(z+1)^2)}{xyz^2}, y, z\right)$
2904	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	1662: $\left(\frac{(y+1)(xz+1)}{xy}, \frac{(y+1)(xz+1)}{xy^2}, \frac{x^2yz}{(y+1)(xz+1)}\right)$ 3286: $\left(y, \frac{xy^2z}{y^2z+yz+1}, \frac{y^2z+yz+1}{xy}\right)$ 3807: $\left(x, \frac{x^2y^3z^2}{(xyz+yz+1)^2}, \frac{(xyz+yz+1)^2}{x^2y^2z}\right)$
2916	$x+\frac{xz}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3yz^2}$	2644: $\left(\frac{xyz+xz+1}{yz}, y, \frac{xyz^2}{xyz+xz+1}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2931	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2448: $\left(x, \frac{z(x+y+1)}{x}, y\right)$
2932	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	1662: $\left(\frac{xz+y}{z}, \frac{y(xz+y)}{xz^2}, y\right)$ 3301: $\left(x, \frac{xyz}{xz+z+1}, z\right)$ 3528: $\left(x, \frac{z(y+1)}{y}, y\right)$ 3842: $\left(x, \frac{x^2yz^2}{(xz+z+1)^2}, z\right)$
2938	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1884: $\left(\frac{xz+yz+y}{z}, z, \frac{xz}{y}\right)$
2939	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2304: $\left(\frac{(z+1)^2}{yz}, x, z\right)$
2940	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2975: $\left(x, \frac{y(xz+(z+1)^2)}{xz}, \frac{1}{z}\right)$
2954	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	2649: $\left(x, y, \frac{(x+1)(x+y)^2}{x^2y^2z}\right)$
2955	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	2152: $\left(\frac{xz+y}{z}, \frac{y(xz+y)}{xz^2}, \frac{1}{y}\right)$ 2689: $\left(\frac{xyz+xy+z}{yz}, \frac{xyz+xy+z}{xy^2}, z\right)$ 2975: $\left(x, y, \frac{z(x+y)}{x}\right)$
2972	$x+yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1932: $\left(\frac{x(yz+y+z)}{yz}, z, \frac{1}{y}\right)$
2975	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	2940: $\left(x, \frac{xyz}{xz+(z+1)^2}, \frac{1}{z}\right)$ 2955: $\left(x, y, \frac{xz}{x+y}\right)$ 3540: $\left(x, \frac{y+z}{yz}, \frac{y}{z}\right)$ 3861: $\left(x, \frac{x^2yz}{(x+1)(xz+(z+1)^2)}, \frac{1}{z}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
2977	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	2690: $\left(\frac{xy+xz+z}{x}, x, \frac{y}{z}\right)$ 3033: $\left(y, x, \frac{z(x+1)}{x}\right)$ 3295: $\left(y, x, \frac{(x+1)(x+y+1)}{xyz}\right)$ 3708: $\left(x, y, \frac{(y+1)^2(x+y+1)}{xy^2z}\right)$
2979	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2656: $\left(x, \frac{(z+1)(x+1)}{yz}, z\right)$
2981	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{z}{x^2}+\frac{1}{x^2y}$	2292: $\left(x, \frac{x+y}{yz}, y\right)$
2986	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1924: $\left(\frac{y(x+1)(x+z)}{xz}, x, z\right)$
2994	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	2564: $\left(x, \frac{xy}{x+1}, z\right)$ 2855: $\left(\frac{(xz+y)(xyz+xz+y)}{x^2yz}, y, \frac{x^3yz^2}{(xz+y)(xyz+xz+y)}\right)$ 3468: $\left(y, \frac{xy^2z^2}{(yz+1)^2}, z\right)$ 3510: $\left(x, \frac{x^2yz}{(x+1)(xz+1)}, z\right)$ 3978: $\left(y, \frac{yz+(y+1)^2}{xy}, z\right)$
2995	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1419: $\left(\frac{x(y+1)^2}{yz}, x, \frac{1}{y}\right)$ 2354: $\left(\frac{(x+1)(x+yz)}{xy}, x, \frac{x}{yz}\right)$ 3031: $\left(x, \frac{y+z}{yz}, \frac{z}{y}\right)$
3002	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	3286: $\left(x, \frac{(yz+1)(x+yz+1)}{y^2z}, \frac{y^3z^2}{(yz+1)(x+yz+1)}\right)$ 3444: $\left(x, y, \frac{xz}{x+y+1}\right)$
3010	$x+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2636: $\left(y, x, \frac{z(y+1)}{x}\right)$ 2644: $\left(\frac{(xz+1)(xz+x+1)}{xyz}, x, z\right)$ 2893: $\left(x, z, \frac{xz+(z+1)^2}{yz^2}\right)$ 3669: $\left(y, z, \frac{xy}{y+z+1}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3021	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2690: $\left(\frac{(x+1)(x+z)}{xy}, x, z\right)$
3031	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	2995: $\left(x, \frac{z+1}{yz}, \frac{z+1}{y}\right)$
3033	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2977: $\left(y, x, \frac{yz}{y+1}\right)$
3092	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{2y^2z}{x}+\frac{2yz}{x}+\frac{4y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y^2z}{x^2}+\frac{3y}{x^2}+\frac{3}{x^2z}+\frac{1}{x^2yz^2}$	2434: $\left(\frac{x(y+z)}{y}, \frac{xz(y+z)}{y^2}, \frac{y^2}{y+z}\right)$
3139	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	1254: $\left(\frac{xyz+(yz+1)^2}{y^2z}, x, \frac{xy}{xyz+(yz+1)^2}\right)$
3158	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2253: $\left(\frac{y(xz+x+z)}{xz}, x, z\right)$ 3673: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}, y\right)$ 4108: $\left(\frac{x^3z^2}{(xz+y+1)^2}, \frac{(xz+y+1)^2}{x^2z}, y\right)$
3159	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2292: $\left(\frac{(x+y+z)(x^2+xz+yz)}{x^2yz}, \frac{x}{y}, \frac{z}{y}\right)$
3164	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{xy^2z}$	2636: $\left(\frac{(yz+z+1)^2}{xyz}, y, \frac{1}{z}\right)$
3174	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	3288: $\left(y, x, \frac{(y+1)^2}{yz}\right)$
3176	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2604: $\left(\frac{(xy+z)^2}{x^2y}, \frac{(xy+z)^2}{x^2yz}, \frac{x^3y^2}{(xy+z)^2}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3197	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	2448: $\left(x, y, \frac{y+1}{yz}\right)$ 3288: $\left(\frac{xy+z+1}{y}, z, \frac{xy^2}{xy+z+1}\right)$ 3658: $\left(\frac{(xyz+x+y)^2}{x^2y^2z}, \frac{x}{y}, \frac{x^3y^2z^2}{(xyz+x+y)^2}\right)$ 4051: $\left(\frac{x^2yz}{xyz+y+1}, y, \frac{xyz+y+1}{xy}\right)$
3207	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{3z}{x^2y}+\frac{z}{x^2y^2}$	2604: $\left(\frac{(z+1)(xy+z)}{xz}, z, \frac{(z+1)(xy+z)}{x^2y}\right)$
3208	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	3286: $\left(x, \frac{(x+yz+1)(xyz+yz+1)}{xy^2z}, \frac{(x+yz+1)(xyz+yz+1)}{xy^3z^2}\right)$ 3941: $\left(x, y, \frac{x^2y^2z}{(xy+x+1)^2}\right)$
3251	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{z}{xy^2}+\frac{2z}{x^2y}+\frac{2}{x^2y}+\frac{2z}{x^2y^2}+\frac{z}{x^3y^2}$	3288: $\left(y, x, \frac{xyz}{xy+1}\right)$
3253	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	3288: $\left(y, x, \frac{z(y+1)}{y}\right)$
3256	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	1834: $\left(\frac{(x+yz)(x+yz+1)}{y^2z}, x, \frac{x^2}{yz}\right)$ 2489: $\left(x, y, \frac{y^2z}{(y+1)^2}\right)$ 3485: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$ 3649: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
3271	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	2278: $\left(\frac{z(x+y)}{x}, y, x\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3286	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^3z^2}$	2649: $\left(x, \frac{xyz+yz+1}{xz}, \frac{xyz^2}{xyz+yz+1}\right)$ 2670: $\left(x, \frac{x+yz+1}{y}, \frac{y^2z}{x+yz+1}\right)$ 2904: $\left(\frac{xyz+yz+1}{xz}, x, \frac{yz}{x}\right)$ 3002: $\left(x, \frac{(yz+1)(x+yz+1)}{y^2z}, \frac{y^3z^2}{(yz+1)(x+yz+1)}\right)$ 3208: $\left(x, \frac{(xz+y+z)(xy+y+z)}{xy^2z}, \frac{xy^3}{(xz+y+z)(xy+y+z)}\right)$ 3838: $\left(y, \frac{(yz+1)(yz+y+1)(y^2z+yz+1)}{xy^3z^2}, \frac{xy^4z^3}{(yz+1)(yz+y+1)(y^2z+yz+1)}\right)$
3288	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3174: $\left(y, x, \frac{(x+1)^2}{xz}\right)$ 3197: $\left(\frac{x^2z}{xz+y+1}, \frac{xz+y+1}{x}, y\right)$ 3251: $\left(y, x, \frac{z(xy+1)}{xy}\right)$ 3253: $\left(y, x, \frac{xz}{x+1}\right)$ 3694: $\left(y, x, \frac{(x+1)(xy+1)}{xyz}\right)$ 3957: $\left(z, x, \frac{x^2yz}{(x+1)(xz+x+1)}\right)$
3289	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2656: $\left(\frac{(x+y+1)^2}{xyz}, x, y\right)$
3295	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	2977: $\left(y, x, \frac{(y+1)(x+y+1)}{xyz}\right)$
3301	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2932: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$ 3311: $\left(x, \frac{z(y+1)}{y}, y\right)$
3303	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2698: $\left(\frac{(x+y+1)(xy+x+y)}{xy^2z}, y, x\right)$
3311	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3301: $\left(x, z, \frac{yz}{z+1}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3353	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{2yz}{x}+\frac{4y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	2434: $\left(\frac{x(xz^2+y+z)}{y}, \frac{xz(xz^2+y+z)}{y^2}, \frac{y^2}{xz^2+y+z}\right)$
3422	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	2859: $\left(\frac{(xy+z)^2}{x^2y}, \frac{(xy+z)^2}{x^2yz}, \frac{x^3y^2}{(xy+z)^2}\right)$
3440	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{6}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{4}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2152: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, \frac{x^3z^2}{(xyz+xz+y^2)^2}\right)$ 3501: $\left(x, \frac{xyz}{xz+y}, \frac{xz+y}{xy^2}\right)$
3444	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{6}{xyz}+\frac{3}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	3002: $\left(x, y, \frac{z(x+y+1)}{x}\right)$
3454	$x+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	2295: $\left(\frac{(x+yz)(xyz+x+yz)}{xy^2z}, x, \frac{yz}{x}\right)$
3458	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{2z}{x}+\frac{2}{x}+\frac{5}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	3524: $\left(y, x, \frac{z(xy+y+1)}{xy}\right)$
3468	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^3z^2}$	2994: $\left(\frac{y(xz+1)^2}{x^2z^2}, x, z\right)$
3478	$x+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{6}{xy^2z}+\frac{2}{xy^2z^2}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^3}$	2644: $\left(\frac{(xz+1)(xyz+xz+1)}{xyz^2}, y, \frac{xz}{y}\right)$
3482	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2656: $\left(\frac{y(xz+z+1)}{xz}, x, z\right)$
3485	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	3256: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
3495	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{6}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^3z^2}$	3540: $\left(\frac{(xyz+y+z)^2}{x^2yz^2}, \frac{(xyz+y+z)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+y+z)^2}\right)$
3501	$x+y+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{3y^2}{x^2z}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{y^3}{x^3z^2}+\frac{2y^2}{x^3z^2}+\frac{y}{x^3z^2}$	3440: $\left(x, \frac{xyz+1}{xz}, \frac{y(xyz+1)}{x}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3510	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	2994: $\left(x, \frac{y(x+1)(xz+1)}{x^2z}, z\right)$
3521	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2347: $\left(\frac{(xy+z)(xy+y+z)}{xy^2z}, x, \frac{z}{y}\right)$
3523	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	2690: $\left(\frac{(x+1)(xy+xz+z)}{x^2}, x, \frac{y}{z}\right)$
3524	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{5}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2690: $\left(\frac{y(xz+x+z)}{xz}, x, z\right)$ 3458: $\left(y, x, \frac{xyz}{xy+x+1}\right)$ 3539: $\left(x, y, \frac{yz}{y+1}\right)$ 3863: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$ 4071: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$
3525	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^3z^2}$	2644: $\left(\frac{(xz+1)^2(xz+x+1)}{x^2yz^2}, x, z\right)$
3528	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	2932: $\left(x, z, \frac{yz}{z+1}\right)$
3539	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3524: $\left(x, y, \frac{z(y+1)}{y}\right)$
3540	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{4}{x}+\frac{4}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{z}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	2975: $\left(x, \frac{z+1}{y}, \frac{z+1}{yz}\right)$ 3495: $\left(\frac{(xyz+x+y)^2}{x^2y^2z}, \frac{x^2y^3z^2}{(xyz+x+y)^2}, \frac{x^3y^2z^2}{(xyz+x+y)^2}\right)$ 3980: $\left(\frac{(y+1)(xz+y+1)^2}{x^2yz}, \frac{x^3z^2}{(y+1)(xz+y+1)^2}, \frac{x^3yz^2}{(y+1)(xz+y+1)^2}\right)$
3557	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{4z}{y}+\frac{4}{y}+\frac{7z}{y^2}+\frac{4z}{y^3}+\frac{3}{x}+\frac{2}{xz}+\frac{8}{xy}+\frac{6}{xy^2}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}$	2448: $\left(\frac{(xyz+x+yz)^2}{x^2y^2z}, x, \frac{x^2y^3z^2}{(xyz+x+yz)^2}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3591	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2y}{x^2z^2}+\frac{5}{x^2z}+\frac{5}{x^2y}+\frac{2z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1662: $\left(\frac{(y+z)(xz^2+y+z)}{xz^2}, \frac{x^2z^3}{(y+z)(xz^2+y+z)}, \frac{x^2yz^2}{(y+z)(xz^2+y+z)}\right)$ 2152: $\left(x+y+z, \frac{x}{y(x+y+z)}, \frac{xz}{y^2(x+y+z)}\right)$ 2760: $\left(\frac{(xz+(yz+1)^2)(x^2z+x+y)}{x^2y^2z^2}, \frac{x^3y^2z^3}{(xz+(yz+1)^2)(x^2z+x+y)}, \frac{x^2y^3z^3}{(xz+(yz+1)^2)(x^2z+x+y)}\right)$
3600	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{2}{x^2z}+\frac{5}{x^2y}+\frac{4z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{1}{x^3y^2}+\frac{2z}{x^3y^3}+\frac{z^2}{x^3y^4}$	1680: $\left(\frac{(x+y^2z)(xyz+x+y^2z)}{y^3z^2}, \frac{y^4z^3}{(x+y^2z)(xyz+x+y^2z)}, \frac{xy^3z^3}{(x+y^2z)(xyz+x+y^2z)}\right)$
3616	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2448: $\left(x, \frac{z(x+y+1)^2}{x^2}, y\right)$ 4212: $\left(\frac{(xyz+(y+1)^2)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+(y+1)^2)^2}, y\right)$
3649	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{5}{x}+\frac{6}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{10}{x^2z}+\frac{10}{x^2yz}+\frac{5}{x^2y^2z}+\frac{1}{x^2y^3z}$	3256: $\left(x, y, \frac{(y+1)^2}{xz}\right)$
3650	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	1662: $\left(\frac{(y+1)^2(xz+1)}{xy^2}, y, \frac{x^2y^2z}{(y+1)^2(xz+1)}\right)$
3654	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{7}{x^2z}+\frac{3}{x^2yz}+\frac{3y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{y}{x^4z^3}$	2855: $\left(\frac{(xz+y)(xyz+xz+y)^2}{x^3y^2z^2}, y, \frac{x^4y^2z^3}{(xz+y)(xyz+xz+y)^2}\right)$
3658	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{3}{x^2yz^2}+\frac{2y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	3197: $\left(\frac{(xz+y+1)^2}{x^2z}, \frac{(xz+y+1)^2}{x^2yz}, \frac{x^3z^2}{(xz+y+1)^2}\right)$
3662	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3z}{x^2}+\frac{2z^2}{x^2y}+\frac{6z}{x^2y}+\frac{3z}{x^2y^2}+\frac{3z^2}{x^3y}+\frac{3z^2}{x^3y^2}+\frac{z^3}{x^4y^2}$	2859: $\left(\frac{(xy+z)(xyz+xy+z)}{x^2yz}, z, \frac{(xy+z)(xyz+xy+z)}{x^3y^2}\right)$
3669	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3010: $\left(\frac{z(x+y+1)}{x}, x, y\right)$
3673	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{4}{x}+\frac{5}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	3158: $\left(\frac{xy+z+1}{y}, z, \frac{xy^2}{xy+z+1}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3677	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^2z^3}$	2893: $\left(\frac{(yz+z+1)(yz+(z+1)^2)}{xyz^2}, y, z\right)$
3694	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{3}{xy^2z}+\frac{2}{x^2y}+\frac{2}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z}$	3288: $\left(y, x, \frac{(y+1)(xy+1)}{xyz}\right)$
3705	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2689: $\left(\frac{z(xy+y+1)(xy+x+1)}{x^2y^2}, y, x\right)$
3706	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	2670: $\left(\frac{(xz+z+1)^2}{xyz^2}, x, z\right)$
3708	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{5}{xyz}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	2977: $\left(x, y, \frac{(y+1)^2(x+y+1)}{xy^2z}\right)$
3807	$x+\frac{x}{y}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{7}{xy}+\frac{3}{xyz}+\frac{8}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z^2}+\frac{z}{x^2}+\frac{4}{x^2y}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	2904: $\left(x, \frac{(xyz+yz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$
3821	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3y^2}{x^2z}+\frac{7y}{x^2z}+\frac{6}{x^2z}+\frac{2}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	2604: $\left(\frac{xyz+(z+1)^2}{yz}, z, \frac{xy^2z}{xyz+(z+1)^2}\right)$
3838	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{3}{xy^2}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z}+\frac{2}{xy^3z^2}+\frac{1}{xy^4z^2}$	3286: $\left(\frac{(yz+1)(x+yz+1)(xyz+yz+1)}{xy^3z^2}, x, \frac{yz}{x}\right)$
3842	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	2932: $\left(x, \frac{y(xz+z+1)^2}{x^2z^2}, z\right)$
3861	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{8}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2975: $\left(x, \frac{y(x+1)(xz+(z+1)^2)}{x^2z}, \frac{1}{z}\right)$ 4177: $\left(\frac{(xyz+(y+1)^2)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(xyz+(y+1)^2)^2}, y\right)$
3863	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{5}{xy}+\frac{5}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	3524: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$
3941	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{7}{xyz}+\frac{4}{xy^2z}+\frac{3}{x^2z}+\frac{2}{x^2y}+\frac{8}{x^2yz}+\frac{6}{x^2y^2z}+\frac{3}{x^3yz}+\frac{4}{x^3y^2z}+\frac{1}{x^4y^2z}$	3208: $\left(x, y, \frac{z(xy+x+1)^2}{x^2y^2}\right)$

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Table 119 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 119a
3957	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{5}{yz}+\frac{1}{yz^2}+\frac{2}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{9}{xyz}+\frac{4}{xyz^2}+\frac{2}{x^2z}+\frac{1}{x^2y}+\frac{7}{x^2yz}+\frac{6}{x^2yz^2}+\frac{2}{x^3yz}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^2}$	3288: $\left(y, \frac{z(y+1)(xy+y+1)}{xy^2}, x\right)$
3978	$x+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{1}{xyz^2}+\frac{3}{xy^2}+\frac{7}{xy^2z}+\frac{3}{xy^2z^2}+\frac{3}{xy^3z}+\frac{3}{xy^3z^2}+\frac{1}{xy^4z^2}$	2994: $\left(\frac{xz+(x+1)^2}{xy}, x, z\right)$
3980	$x+y+z+\frac{z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{9y}{x^2z}+\frac{9}{x^2z}+\frac{3}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{4y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{4}{x^3z^2}+\frac{1}{x^3yz^2}$	3540: $\left(\frac{(y+z)(xyz+y+z)^2}{x^2y^2z^2}, \frac{z}{y}, \frac{x^3y^2z^3}{(y+z)(xyz+y+z)^2}\right)$
4011	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+3z+\frac{6z^2}{y}+\frac{4z}{y}+\frac{4z^3}{y^2}+\frac{3}{x}+\frac{2}{xz}+\frac{9z}{xy}+\frac{2}{xy}+\frac{6z^2}{xy^2}+\frac{3}{x^2z}+\frac{7}{x^2y}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	2434: $\left(\frac{x(y+z)(xz^2+y+z)}{y^2}, \frac{y^3}{(y+z)(xz^2+y+z)}, \frac{y^2z}{(y+z)(xz^2+y+z)}\right)$
4035	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{7y}{x^2z}+\frac{2y}{x^2z^2}+\frac{9}{x^2z}+\frac{4}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{9y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{4y}{x^4z^3}+\frac{y^2}{x^5z^4}$	2859: $\left(\frac{xy+z(xy+1)^2}{xy^2z}, z, \frac{x^2y^3z}{xy+z(xy+1)^2}\right)$
4051	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{9}{x^2z}+\frac{7}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3197: $\left(\frac{xyz+y+1}{yz}, y, \frac{xyz^2}{xyz+y+1}\right)$
4071	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{5}{xz}+\frac{5}{xy}+\frac{9}{xyz}+\frac{2}{xy^2}+\frac{7}{xy^2z}+\frac{2}{xy^3z}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{10}{x^2yz}+\frac{10}{x^2y^2z}+\frac{5}{x^2y^3z}+\frac{1}{x^2y^4z}$	3524: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$
4108	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{5}{x}+\frac{5}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3y^2}{x^2z}+\frac{10y}{x^2z}+\frac{13}{x^2z}+\frac{8}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^3}{x^3z^2}+\frac{5y^2}{x^3z^2}+\frac{10y}{x^3z^2}+\frac{10}{x^3z^2}+\frac{5}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3158: $\left(\frac{(xy+z+1)^2}{xy^2}, z, \frac{x^2y^3}{(xy+z+1)^2}\right)$
4177	$x+y+z+\frac{1}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{5y}{xz}+\frac{6}{x}+\frac{8}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xy^2z}+\frac{3y^2}{x^2z}+\frac{12y}{x^2z}+\frac{18}{x^2z}+\frac{12}{x^2yz}+\frac{3}{x^2y^2z}+\frac{y^3}{x^3z^2}+\frac{6y^2}{x^3z^2}+\frac{15y}{x^3z^2}+\frac{20}{x^3z^2}+\frac{15}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	3861: $\left(\frac{(xyz+(z+1)^2)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+(z+1)^2)^2}\right)$
4212	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{6}{xz}+\frac{4}{xy}+\frac{6}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{14}{x^2z}+\frac{16}{x^2yz}+\frac{9}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{15}{x^3z^2}+\frac{20}{x^3yz^2}+\frac{15}{x^3y^2z^2}+\frac{6}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3616: $\left(\frac{(xyz+(z+1)^2)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(xyz+(z+1)^2)^2}\right)$

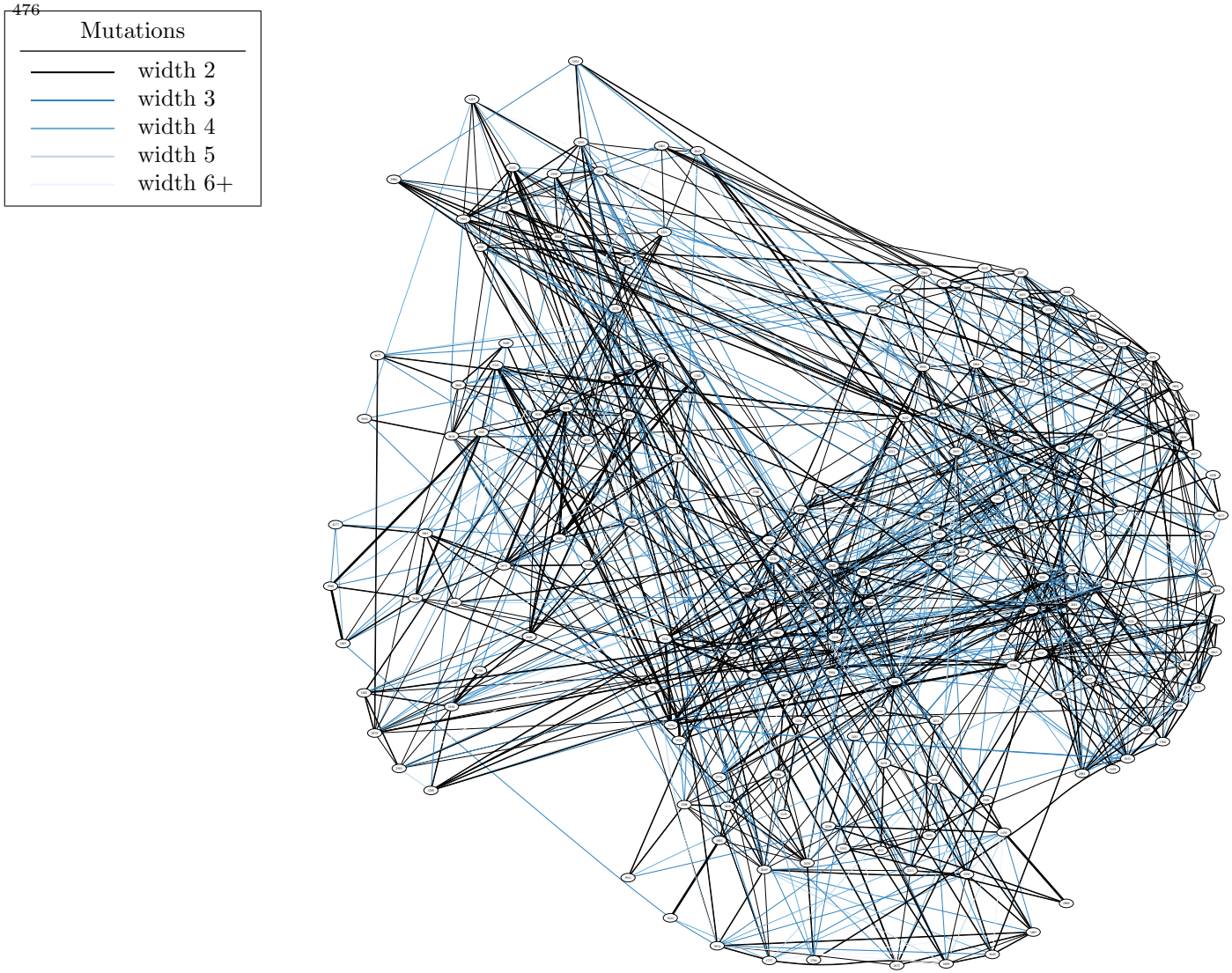

FIGURE 119B. All mutations between Minkowski polynomials in bucket 119

Bucket 120

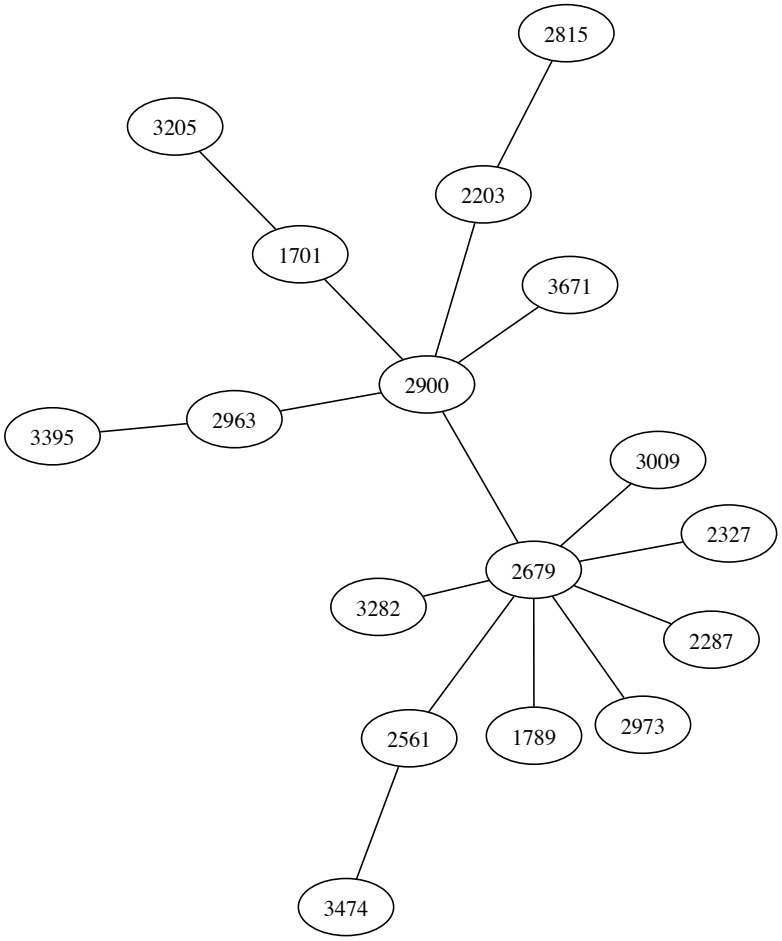

Figure 120a. Selected width-2 mutations between Minkowski polynomials in bucket 120

Table 120. Laurent polynomials and selected mutations for bucket 120.

Node	Laurent polynomial	Mutations from Figure 120a
1701	$x+\frac{x}{yz}+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	2900: $\left(z, \frac{xyz}{xz+x+y}, \frac{x}{y}\right)$ 3205: $\left(\frac{(yz+y+z)^2}{xyz}, y, z\right)$
1789	$x+\frac{x}{z}+\frac{x}{y}+yz+y+z+\frac{3}{z}+\frac{2}{y}+\frac{y}{x}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{1}{x^2z}$	2679: $\left(x, z, \frac{(x+1)^2}{xy}\right)$
2203	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{z}{xy}$	2815: $\left(\frac{x^2yz}{xyz+xz+y^2}, \frac{x^2z}{xyz+xz+y^2}, \frac{xy^2}{xyz+xz+y^2}\right)$ 2900: $\left(z, \frac{(x+yz)^2}{xy^2z}, \frac{x}{y}\right)$
2287	$x+\frac{xz}{y}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	2679: $\left(\frac{z(x+1)}{x}, y, x\right)$
2327	$x+\frac{x}{z}+\frac{x}{y}+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xy}$	2679: $\left(x, z, \frac{x+1}{y}\right)$
2561	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}$	2679: $\left(\frac{y(x+1)}{x}, x, \frac{z(x+1)}{x}\right)$ 3474: $\left(x, z, \frac{(z+1)^3}{yz^2}\right)$
2679	$x+\frac{x}{z}+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	1789: $\left(x, \frac{(x+1)^2}{xz}, y\right)$ 2287: $\left(z, y, \frac{xz}{z+1}\right)$ 2327: $\left(x, \frac{x+1}{z}, y\right)$ 2561: $\left(y, \frac{xy}{y+1}, \frac{yz}{y+1}\right)$ 2900: $\left(\frac{xyz}{x+yz}, z, \frac{x}{y}\right)$ 2973: $\left(y, \frac{(z+1)(y+1)^2}{xy}, z\right)$ 3009: $\left(z, x, \frac{z+1}{y}\right)$ 3282: $\left(z, y, \frac{(z+1)^2}{xz}\right)$
2815	$x+y+z+\frac{3z}{y}+\frac{1}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{2y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{3}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2z}+\frac{y^3}{x^3z^2}$	2203: $\left(x+y+z, \frac{x}{y}, \frac{x^2}{yz(x+y+z)}\right)$

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Table 120 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 120a
2900	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2}$	1701: $\left(\frac{y(xz+z+1)}{x}, \frac{y(xz+z+1)}{xz}, x\right)$ 2203: $\left(\frac{(x+z)^2}{xy}, \frac{(x+z)^2}{xyz}, x\right)$ 2679: $\left(\frac{x(y+z)}{y}, \frac{x(y+z)}{yz}, y\right)$ 2963: $\left(\frac{(x+z)(x+y^2z+yz)}{x^2yz}, \frac{(x+z)(x+y^2z+yz)}{xy^2z^2}, y\right)$ 3671: $\left(\frac{(y+z)^2(yz+z+1)}{xy^2z}, \frac{(y+z)^2(yz+z+1)}{xy^2z^2}, y\right)$
2963	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	2900: $\left(\frac{(x+yz)(xz+x+y)}{x^2yz}, z, \frac{(x+yz)(xz+x+y)}{xy^2z^2}\right)$ 3395: $\left(x, \frac{(xz+z+1)^2}{xyz}, \frac{x^2yz^2}{(xz+z+1)^2}\right)$
2973	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2679: $\left(\frac{(z+1)(x+1)^2}{xy}, x, z\right)$
3009	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	2679: $\left(y, \frac{x+1}{z}, x\right)$
3205	$x+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1701: $\left(\frac{(yz+y+z)^2}{xyz}, y, z\right)$
3282	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2679: $\left(\frac{(x+1)^2}{xz}, y, x\right)$
3395	$x+\frac{xz}{y}+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2963: $\left(x, \frac{(xyz+x+yz)^2}{x^2y^2z}, \frac{yz}{x}\right)$
3474	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{10}{xy}+\frac{10}{xyz}+\frac{5}{xyz^2}+\frac{1}{xyz^3}$	2561: $\left(x, \frac{(y+1)^3}{y^2z}, y\right)$
3671	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2900: $\left(\frac{(x+yz)^2(xz+x+y)}{x^2y^2z^2}, z, \frac{x}{y}\right)$

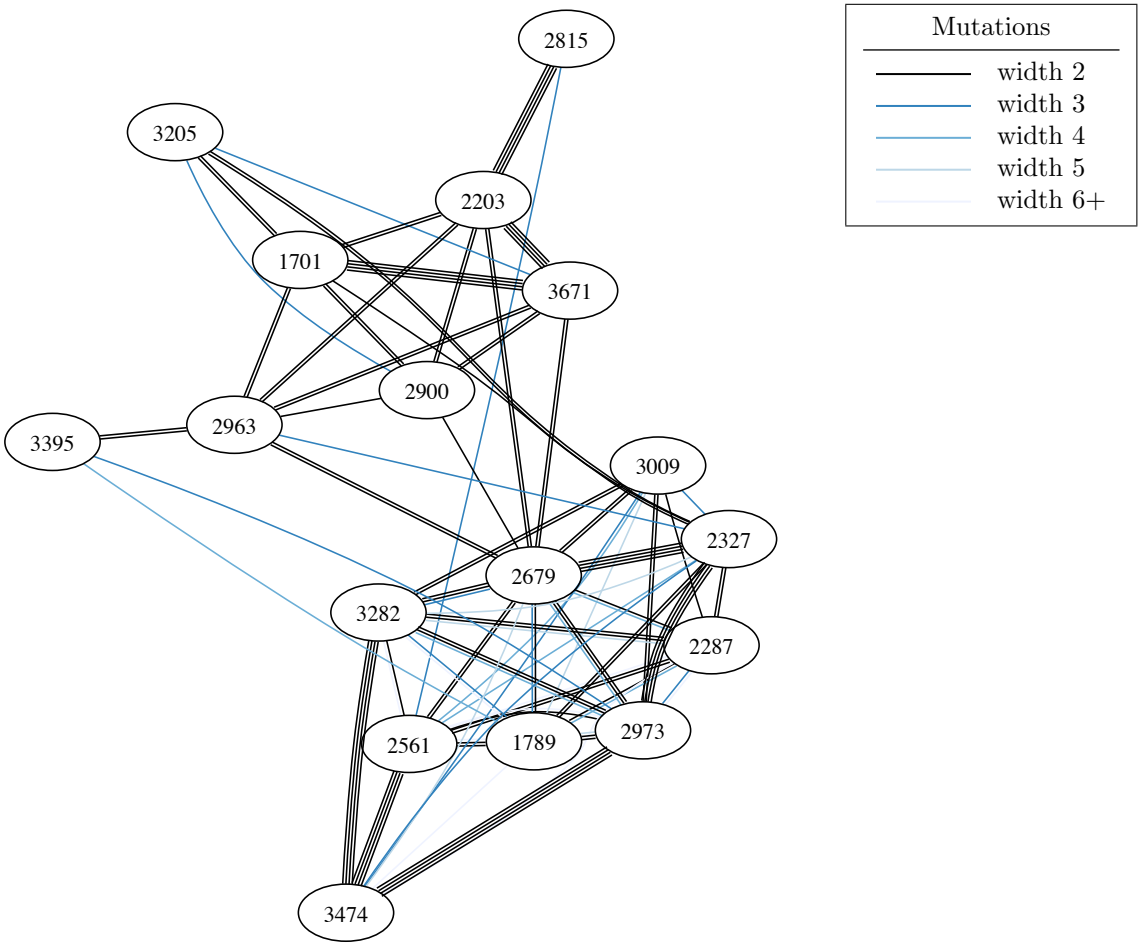

FIGURE 120B. All mutations between Minkowski polynomials in bucket 120

Bucket 121

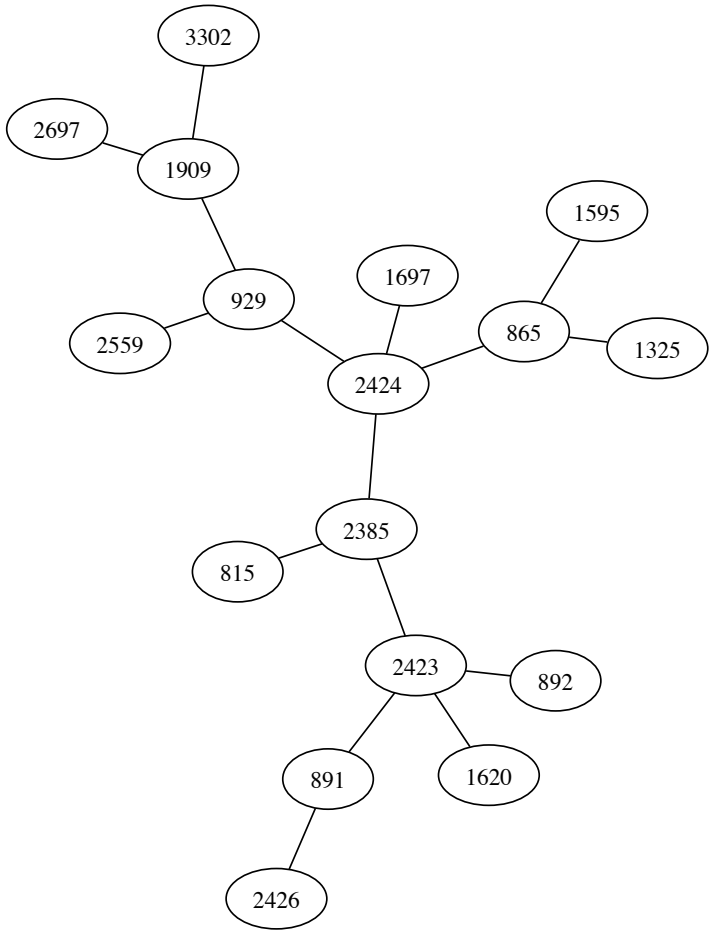

Figure 121a. Selected width-2 mutations between Minkowski polynomials in bucket 121

Table 121. Laurent polynomials and selected mutations for bucket 121.

Node	Laurent polynomial	Mutations from Figure 121a
815	$\frac{x^2z^2}{y}+2xz+x+\frac{2xz}{y}+y+z+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	$2385\colon \left(\frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^3}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$
865	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{1}{x^2y^2z}+\frac{1}{x^2y^3z}$	$1325\colon \left(\frac{x+y}{y^2}, \frac{xy}{x+y}, \frac{y^2}{x^2z}\right)$ $1595\colon \left(\frac{(xy+1)^2}{x}, \frac{x^2y}{(xy+1)^2}, \frac{1}{x^2y^2z}\right)$ $2424\colon \left(\frac{(xyz+z+1)(xyz^2+1)}{x^2yz^3}, z, \frac{x^3y^2z^3}{(xyz+z+1)(xyz^2+1)}\right)$
891	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{1}{x}$	$2423\colon \left(\frac{(y+z)(xz^2+y+z)}{xz^2}, \frac{x^2yz^2}{(y+z)(xz^2+y+z)}, \frac{x^2z^3}{(y+z)(xz^2+y+z)}\right)$ $2426\colon \left(\frac{x^3z^2}{xz+(xz+y)^2}, y, \frac{xz+(xz+y)^2}{x^2z}\right)$
892	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{z}{xy}$	$2423\colon \left(\frac{(y+z)(xy^2z+(y+z)^2)}{xy^2z}, \frac{x^2y^2z^2}{(y+z)(xy^2z+(y+z)^2)}, \frac{x^2y^3z}{(y+z)(xy^2z+(y+z)^2)}\right)$
929	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	$1909\colon \left(\frac{x}{y}, \frac{x^2}{x+y}, z\right)$ $2424\colon \left(\frac{x^2yz^2}{(z+1)(xyz^2+1)}, \frac{x^2yz^3}{(z+1)(xyz^2+1)}, \frac{xz}{(z+1)(xyz^2+1)}\right)$ $2559\colon \left(y, \frac{z+y(z+1)^2}{xz}, z\right)$
1325	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	$865\colon \left(y(xy+1), \frac{xy+1}{x}, \frac{1}{x^2y^2z}\right)$
1595	$xy^2+2xy+x+yz+4y+z+\frac{2z}{x}+\frac{6}{x}+\frac{1}{xy}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2}$	$865\colon \left(\frac{(xy+1)^2}{x}, \frac{x^2y}{(xy+1)^2}, \frac{1}{x^2y^2z}\right)$
1620	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{2}{y}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	$2423\colon \left(\frac{(xz^2+y+z)(xy^2z+(y+z)^2)}{x^2yz^3}, \frac{(xz^2+y+z)(xy^2z+(y+z)^2)}{x^2y^2z^2}, \frac{x^3y^2z^3}{(xz^2+y+z)(xy^2z+(y+z)^2)}\right)$
1697	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{2}{y}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	$2424\colon \left(\frac{x}{z+1}, \frac{xz}{z+1}, y(z+1)\right)$
1909	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	$929\colon \left(\frac{y(x+1)}{x}, \frac{y(x+1)}{x^2}, \frac{1}{z}\right)$ $2697\colon \left(x, \frac{xy}{x+1}, z\right)$ $3302\colon \left(y, \frac{xy^2}{(y+1)^2}, z\right)$

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Table 121 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 121a
2385	$xz^2+2xz+x+\frac{xz^3}{y}+y+3z+\frac{5z^2}{y}+\frac{4}{x}+\frac{2}{xz}+\frac{10z}{xy}+\frac{3}{x^2z}+\frac{10}{x^2y}+\frac{1}{x^3z^2}+\frac{5}{x^3yz}+\frac{1}{x^4yz^2}$	815: $\left(\frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^3}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$ 2423: $\left(x, \frac{(y+z)^4}{x^2y^2z^3}, \frac{y}{xz}\right)$ 2424: $\left(x, y(z+1)^2, \frac{1}{xz}\right)$
2423	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{4}{x}+\frac{3z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	891: $\left(\frac{(y+z)(xz^2+y+z)}{xz^2}, \frac{x^2yz^2}{(y+z)(xz^2+y+z)}, \frac{x^2z^3}{(y+z)(xz^2+y+z)}\right)$ 892: $\left(\frac{(y+z)(xyz^2+(y+z)^2)}{xyz^2}, \frac{x^2yz^3}{(y+z)(xyz^2+(y+z)^2)}, \frac{x^2y^2z^2}{(y+z)(xyz^2+(y+z)^2)}\right)$ 1620: $\left(\frac{(x+y^2z+y)(x^2yz+(x+y)^2)}{x^2y^3z}, \frac{x^3y^3z^2}{(x+y^2z+y)(x^2yz+(x+y)^2)}, \frac{x^2y^4z^2}{(x+y^2z+y)(x^2yz+(x+y)^2)}\right)$ 2385: $\left(x, \frac{(xz+1)^4}{x^3yz}, \frac{(xz+1)^4}{x^4yz^2}\right)$
2424	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	865: $\left(\frac{(xyz+y+1)(xy^2z+1)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+y+1)(xy^2z+1)}, y\right)$ 929: $\left(\frac{(y+z)(x+y)}{y}, \frac{x^2}{z(y+z)(x+y)}, \frac{y}{x}\right)$ 1697: $\left(x+y, \frac{xz}{x+y}, \frac{y}{x}\right)$ 2385: $\left(x, \frac{x^2yz^2}{(xz+1)^2}, \frac{1}{xz}\right)$
2426	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}$	891: $\left(\frac{xz+(xz+y)^2}{xz^2}, y, \frac{x^2z^3}{xz+(xz+y)^2}\right)$
2559	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	929: $\left(\frac{z+x(z+1)^2}{yz}, x, z\right)$
2697	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	1909: $\left(x, \frac{y(x+1)}{x}, z\right)$
3302	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	1909: $\left(\frac{y(x+1)^2}{x^2}, x, z\right)$

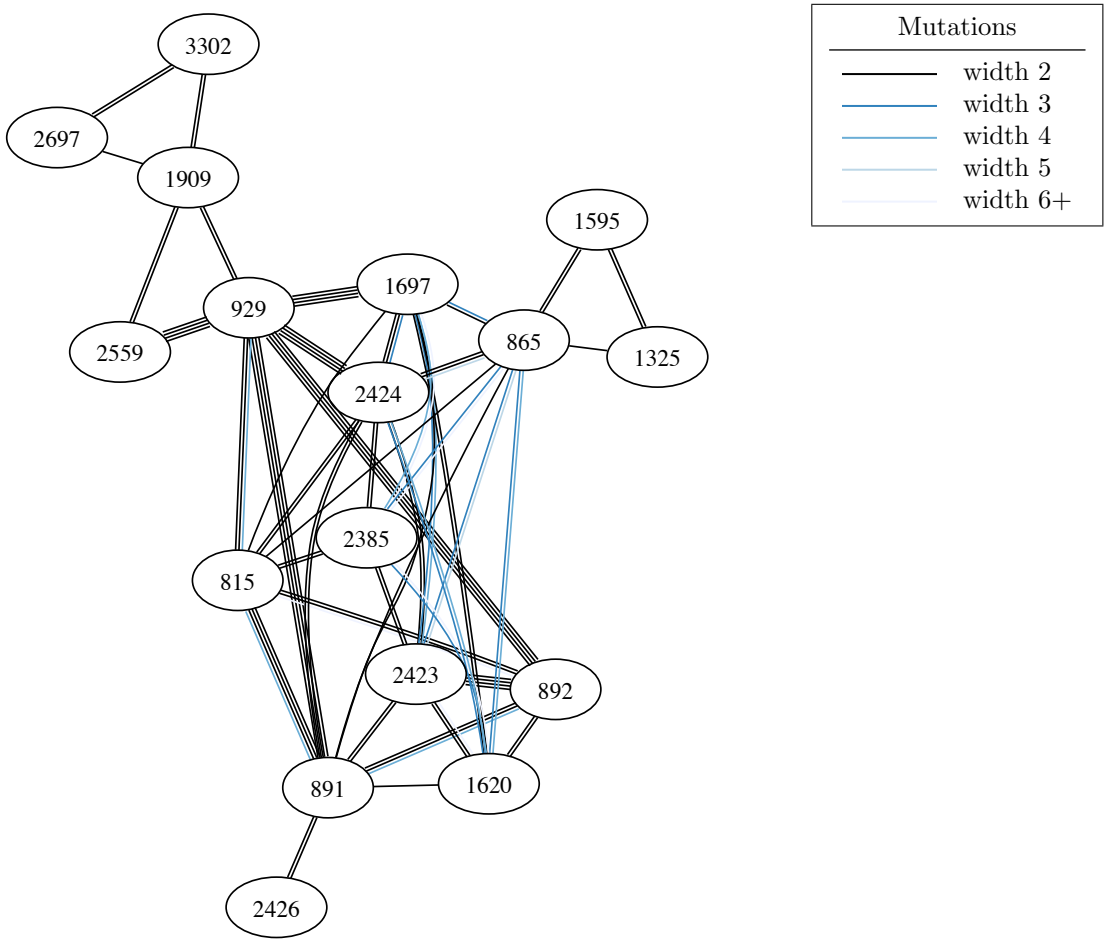

FIGURE 121B. All mutations between Minkowski polynomials in bucket 121

Bucket 122

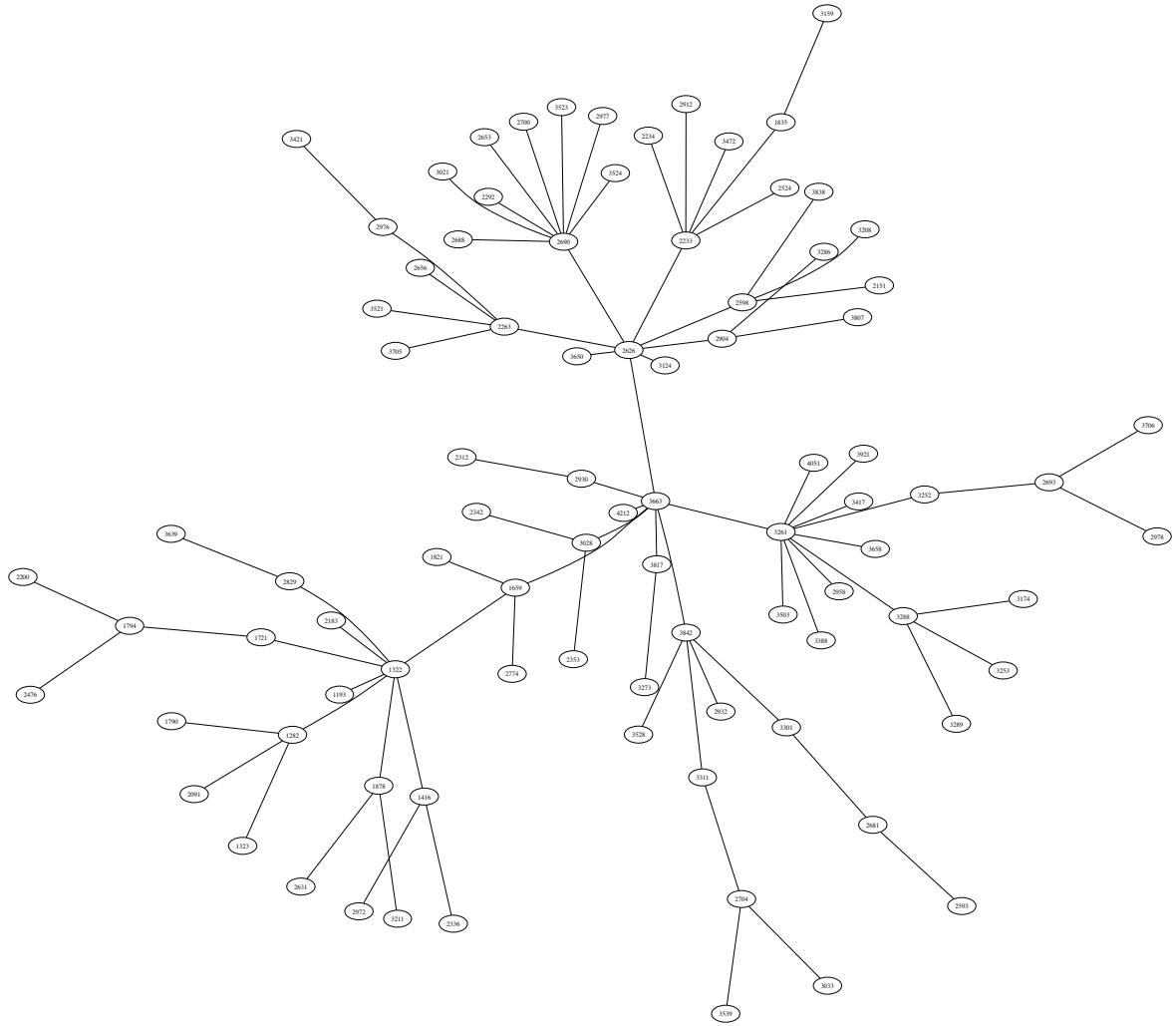

Figure 122a. Selected width-2 mutations between Minkowski polynomials in bucket 122

Table 122. Laurent polynomials and selected mutations for bucket 122.

Node	Laurent polynomial	Mutations from Figure 122a
1193	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{2z}{y}+\frac{3}{y}+\frac{2y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{y}{x^2z^2}$	1322: $\left(\frac{(x+z)^2}{yz^2},\frac{(x+z)^2}{x^2z},\frac{y}{x}\right)$
1282	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1322: $\left(\frac{x^2+yz}{yz^2},\frac{z}{x},\frac{y}{x}\right)$ 1323: $\left(\frac{x^2}{x+y},\frac{x+y}{xy},\frac{y^2}{z(x+y)}\right)$ 1790: $\left(\frac{x+y}{y^2},\frac{xy}{x+y},\frac{y}{xz}\right)$ 2091: $\left(\frac{(yz+1)^2}{xy^2z^2},\frac{xyz}{(yz+1)^2},y\right)$
1322	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{x^2}$	1193: $\left(\frac{(xz+y)^2}{xy^2z},\frac{(xz+y)^2}{xy^2},\frac{(xz+y)^2}{x^2yz^2}\right)$ 1282: $\left(\frac{yz+1}{xy^2z},\frac{yz+1}{xy^2},\frac{yz+1}{xyz}\right)$ 1416: $\left(\frac{x+y}{xy},\frac{z(x+y)}{y},\frac{x+y}{x^2}\right)$ 1659: $\left(z,\frac{x^2z}{xz+x+yz},\frac{xz+x+yz}{xy}\right)$ 1721: $\left(\frac{xy^2z+(xz+y)^2}{x^2yz},y,\frac{xy^2z+(xz+y)^2}{xy^2}\right)$ 1878: $\left(x,\frac{z(x+y)}{y},y\right)$ 2183: $\left(\frac{(x+y)(x+yz)}{xy^2z},\frac{(x+y)(x+yz)}{xy^2},\frac{(x+y)(x+yz)}{x^2yz}\right)$ 2829: $\left(\frac{x^2z}{xyz+xz+y},\frac{x^2yz}{xyz+xz+y},\frac{xy}{xyz+xz+y}\right)$
1323	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y}{x^2}$	1282: $\left(\frac{xy+1}{y},\frac{xy+1}{xy^2},\frac{1}{xy^2z}\right)$
1416	$xz+x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	1322: $\left(\frac{x+z}{xz},\frac{x+z}{x^2},\frac{yz}{x+z}\right)$ 2336: $\left(\frac{x}{y},\frac{x^2}{x+y},\frac{1}{z}\right)$ 2972: $\left(y,\frac{xy^2}{(y+1)^2},z\right)$
1659	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	1322: $\left(\frac{x^2+xyz+yz}{xz},\frac{x^2+xyz+yz}{yz^2},x\right)$ 1821: $\left(\frac{yz+x(z+1)^2}{xyz},\frac{yz+x(z+1)^2}{x^2z},z\right)$ 2774: $\left(\frac{(xyz+xz+y^2)(y^2+xz(y+1)^2)}{x^2y^3z},\frac{(xyz+xz+y^2)(y^2+xz(y+1)^2)}{x^3y^2z^2},y\right)$ 3663: $\left(y,\frac{xy^2}{(y+1)^2},z\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
1721	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{3z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	1322: $\left(\frac{xyz+(x+z)^2}{x^2z}, y, \frac{xyz^2}{xyz+(x+z)^2}\right)$ 1794: $\left(\frac{xyz+y+1}{xy}, \frac{xyz+y+1}{x^2y^3z}, \frac{1}{xyz}\right)$
1790	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	1282: $\left(y(xy+1), \frac{xy+1}{x}, \frac{1}{xyz}\right)$
1794	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{1}{x^2y^2z}+\frac{1}{x^2y^3z}$	1721: $\left(\frac{xz^2+yz+y}{x^2z^2}, \frac{xz}{y}, \frac{xy}{xz^2+yz+y}\right)$ 2200: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, z\right)$ 2476: $\left(\frac{(xz+y)^2}{xy^2}, \frac{x^2yz}{(xz+y)^2}, \frac{1}{xz}\right)$
1821	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1659: $\left(\frac{yz+x(z+1)^2}{xyz}, \frac{yz+x(z+1)^2}{x^2z}, z\right)$
1835	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{1}{x}$	2233: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 3159: $\left(\frac{(y+1)(y+z+1)}{xz}, y, \frac{xy^2}{(y+1)(y+z+1)}\right)$
1878	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	1322: $\left(x, z, \frac{yz}{x+z}\right)$ 2631: $\left(\frac{x}{z+1}, \frac{y}{z+1}, \frac{yz}{z+1}\right)$ 3211: $\left(\frac{xy}{(y+1)(y+z)}, \frac{xz}{(y+1)(y+z)}, \frac{xyz}{(y+1)(y+z)}\right)$
2091	$x+y^2z+yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{yz^2}{x}+\frac{4yz}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1282: $\left(\frac{(xy+1)^2}{x}, z, \frac{1}{xyz}\right)$
2151	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xyz}+\frac{y}{x^2}$	2598: $\left(x, y+z, \frac{y}{z(y+z)}\right)$
2183	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1322: $\left(\frac{(x+z)(x^2+yz)}{xyz^2}, \frac{(x+z)(x^2+yz)}{x^2yz}, \frac{y}{x}\right)$
2200	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	1794: $\left(y(xy+1), \frac{xy+1}{x}, z\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
2233	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xy}$	$1835\colon \left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ $2234\colon \left(\frac{yz+1}{y}, \frac{xyz}{yz+1}, \frac{x}{yz+1}\right)$ $2524\colon \left(y, \frac{(xz+1)^2(xz+y)}{x^2yz}, \frac{(xz+1)^2(xz+y)}{x^3yz^2}\right)$ $2626\colon \left(\frac{x^2}{x+y}, z, \frac{z(x+y)}{xy}\right)$ $2912\colon \left(\frac{x+y^2z+y}{y^2}, \frac{xy^2z}{x+y^2z+y}, \frac{y^3z}{x+y^2z+y}\right)$ $3472\colon \left(\frac{(y+z)(xz^2+y+z)}{xz^2}, \frac{x^2yz^2}{(y+z)(xz^2+y+z)}, \frac{x^2z^3}{(y+z)(xz^2+y+z)}\right)$
2234	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z}{x}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	$2233\colon \left(y+z, \frac{y+z}{xz}, \frac{xy}{y+z}\right)$
2263	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	$2626\colon \left(z, \frac{z+1}{y}, \frac{xz}{z+1}\right)$ $2656\colon \left(\frac{xz}{z+1}, y, z\right)$ $2976\colon \left(\frac{xyz}{yz+y+1}, z, y\right)$ $3521\colon \left(\frac{(y+z+1)^2}{xy}, y, \frac{(y+z+1)^2}{xyz}\right)$ $3705\colon \left(\frac{xy^2z}{(y+1)(yz+y+1)}, z, y\right)$
2292	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	$2690\colon \left(x, \frac{x+z}{y}, z\right)$
2312	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	$2930\colon \left(\frac{yz+(z+1)^2}{xz}, y, z\right)$
2336	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	$1416\colon \left(\frac{y(x+1)}{x}, \frac{y(x+1)}{x^2}, \frac{1}{z}\right)$
2342	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	$3028\colon \left(y, \frac{(z+1)(y+z+1)}{xz}, z\right)$
2353	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	$3028\colon \left(y, z, \frac{y+z+1}{x}\right)$
2476	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{3y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y^3}{x^3z^2}+\frac{y^2}{x^3z^2}$	$1794\colon \left(\frac{(xy+1)^2}{x}, \frac{1}{xyz}, \frac{x}{z(xy+1)^2}\right)$
2524	$\frac{x^2z^2}{y}+2xz+x+\frac{xz^2}{y}+\frac{2xz}{y}+y+z+\frac{3z}{y}+\frac{1}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{x^2z}+\frac{1}{x^2yz}+\frac{1}{x^3z^2}$	$2233\colon \left(\frac{(y+z)^2(xz+y)}{xy^2z^2}, x, \frac{xy^3z}{(y+z)^2(xz+y)}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
2593	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{1}{x^2yz}$	2681: $\left(x, y, \frac{z(x+1)}{x}\right)$
2598	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2151: $\left(x, \frac{y^2z}{yz+1}, \frac{y}{yz+1}\right)$ 2626: $\left(\frac{(z+1)(x+y)}{xy}, \frac{(z+1)(x+y)}{xyz}, \frac{(z+1)(x+y)}{x^2z}\right)$ 3208: $\left(x, \frac{x^2y}{(x+1)^2}, \frac{x^2z}{(x+1)^2}\right)$ 3838: $\left(y, \frac{y^2z+(yz+1)^2}{xyz}, \frac{y^2z+(yz+1)^2}{xy^2z^2}\right)$
2626	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2233: $\left(\frac{xz+y}{z}, \frac{y(xz+y)}{xz^2}, y\right)$ 2263: $\left(\frac{z(x+1)}{x}, \frac{x+1}{y}, x\right)$ 2598: $\left(\frac{(y+z)(x+y)}{xyz}, \frac{(y+z)(x+y)}{xy^2}, \frac{x}{y}\right)$ 2690: $\left(\frac{xy+x+z}{xz}, \frac{xy+x+z}{x^2}, y\right)$ 2904: $\left(\frac{(yz+1)(xz+yz+1)}{xyz}, \frac{(yz+1)(xz+yz+1)}{xy^2z^2}, \frac{x}{y}\right)$ 3124: $\left(x, y, \frac{(xy+x+y)^2}{x^2yz}\right)$ 3650: $\left(\frac{(y+1)(xz+y)(xyz+xz+y)}{x^2y^2z}, \frac{(y+1)(xz+y)(xyz+xz+y)}{x^3yz^2}, y\right)$ 3663: $\left(y, \frac{xy^2z}{(z+1)(y+1)^2}, z\right)$
2631	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	1878: $\left(\frac{x(y+z)}{y}, y+z, \frac{z}{y}\right)$
2653	$x+\frac{x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{3yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	2690: $\left(x, \frac{x^2y}{z(x+1)^2}, z\right)$
2656	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2263: $\left(\frac{x(z+1)}{z}, y, z\right)$
2681	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2593: $\left(x, y, \frac{xz}{x+1}\right)$ 3301: $\left(\frac{(y+1)(yz+(z+1)^2)}{xyz}, y, z\right)$
2688	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{x^2y}+\frac{1}{x^2y}$	2690: $\left(x, \frac{y(x+1)}{x}, \frac{z(x+1)}{x}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
2690	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	2292: $\left(x, \frac{x+z}{y}, z\right)$ 2626: $\left(\frac{xz+x+y}{xy}, z, \frac{xz+x+y}{x^2}\right)$ 2653: $\left(x, \frac{yz(x+1)^2}{x^2}, z\right)$ 2688: $\left(x, \frac{xy}{x+1}, \frac{xz}{x+1}\right)$ 2700: $\left(x, \frac{x+1}{y}, \frac{x}{yz}\right)$ 2977: $\left(y, \frac{xyz}{yz+y+1}, \frac{xy}{yz+y+1}\right)$ 3021: $\left(y, \frac{(y+1)(y+z)}{xy}, z\right)$ 3523: $\left(y, \frac{xy^2z}{(y+1)(yz+y+1)}, \frac{xy^2}{(y+1)(yz+y+1)}\right)$ 3524: $\left(y, \frac{xyz}{yz+y+z}, z\right)$
2693	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2978: $\left(x, \frac{xyz}{xz+z+1}, z\right)$ 3252: $\left(x, y, \frac{(x+y)(xy+x+y)}{x^2yz}\right)$ 3706: $\left(y, \frac{xy^2z}{(y+1)(yz+z+1)}, z\right)$
2700	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2690: $\left(x, \frac{x+1}{y}, \frac{xy}{z(x+1)}\right)$
2704	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	3033: $\left(x, \frac{x+z+1}{y}, z\right)$ 3311: $\left(\frac{(y+z+1)(yz+y+z)}{xyz}, y, \frac{y}{z}\right)$ 3539: $\left(y, \frac{(y+1)(y+z+1)}{xy}, z\right)$
2774	$x+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}$	1659: $\left(\frac{(xz+x+yz)(yz+x(z+1)^2)}{x^2yz^2}, z, \frac{x^3z^3}{(xz+x+yz)(yz+x(z+1)^2)}\right)$
2829	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{3z}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{3}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	1322: $\left(x+y+z, \frac{y}{x}, \frac{y}{z(x+y+z)}\right)$ 3639: $\left(x, \frac{x^2y^2z}{x^2yz+(xyz+1)^2}, \frac{y}{x^2yz+(xyz+1)^2}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
2904	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2626: $\left(\frac{(x+y)(xz+x+y)}{x^2y}, \frac{(x+y)(xz+x+y)}{x^2yz}, \frac{x^3z}{(x+y)(xz+x+y)}\right)$ 3286: $\left(y, \frac{xy^2z}{y^2z+yz+1}, \frac{y^2z+yz+1}{xy}\right)$ 3807: $\left(x, \frac{x^2y^3z^2}{(xyz+yz+1)^2}, \frac{(xyz+yz+1)^2}{x^2y^2z}\right)$
2912	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2233: $\left(\frac{y(xz^2+y+z)}{xz^2}, \frac{xz^2+y+z}{xz}, \frac{x^2z^2}{xz^2+y+z}\right)$
2930	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2312: $\left(\frac{yz+(z+1)^2}{xz}, y, z\right)$ 3663: $\left(y, \frac{xy}{y+1}, z\right)$
2932	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	3842: $\left(x, \frac{x^2yz^2}{(xz+z+1)^2}, z\right)$
2958	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	3261: $\left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$
2972	$x+yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}$	1416: $\left(\frac{y(x+1)^2}{x^2}, x, z\right)$
2976	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2263: $\left(\frac{x(yz+z+1)}{yz}, z, y\right)$ 3421: $\left(x, \frac{(xz+z+1)^2}{xyz^2}, z\right)$
2977	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	2690: $\left(\frac{xy+xz+z}{x}, x, \frac{y}{z}\right)$
2978	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2693: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$
3021	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2690: $\left(\frac{(x+1)(x+z)}{xy}, x, z\right)$
3028	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2342: $\left(\frac{(z+1)(x+z+1)}{yz}, z, x\right)$ 2353: $\left(\frac{x+y+1}{z}, x, y\right)$ 3663: $\left(y, z, \frac{(z+1)^2(y+1)}{xyz}\right)$
3033	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2704: $\left(x, \frac{x+z+1}{y}, z\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
3124	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{6}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	$2626\colon \left(x, y, \frac{(xy+x+y)^2}{x^2yz}\right)$
3159	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	$1835\colon \left(\frac{(y+1)(xyz+xz+y^2)}{xy^2}, y, \frac{y^2}{xz}\right)$
3174	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	$3288\colon \left(y, x, \frac{(y+1)^2}{yz}\right)$
3208	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	$2598\colon \left(x, \frac{y(x+1)^2}{x^2}, \frac{z(x+1)^2}{x^2}\right)$
3211	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	$1878\colon \left(\frac{(y+z)(x+y)}{y}, \frac{z}{y}, \frac{z}{x}\right)$
3252	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	$2693\colon \left(x, y, \frac{(x+y)(xy+x+y)}{x^2yz}\right)$ $3261\colon \left(\frac{xz+y+1}{x}, \frac{xz+y+1}{xy}, \frac{x^2z}{xz+y+1}\right)$
3253	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	$3288\colon \left(y, x, \frac{z(y+1)}{y}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
3261	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y}{x^2z}+\frac{2}{x^2z}+\frac{1}{x^2yz}$	2958: $\left(\frac{z(y+1)}{y}, y, \frac{xy}{y+1}\right)$ 3252: $\left(\frac{xyz+x+y}{xy}, \frac{x}{y}, \frac{x^2yz}{xyz+x+y}\right)$ 3288: $\left(\frac{xy+1}{y}, z, \frac{xy^2}{xy+1}\right)$ 3388: $\left(x, \frac{xyz}{xz+x+1}, z\right)$ 3417: $\left(\frac{(z+1)(xy+z+1)}{xz}, z, \frac{x^2yz}{(z+1)(xy+z+1)}\right)$ 3503: $\left(x, \frac{xz+x+1}{xy}, z\right)$ 3658: $\left(\frac{(xz+1)(xyz+x+y)}{x^2yz}, \frac{x}{y}, \frac{x^3yz^2}{(xz+1)(xyz+x+y)}\right)$ 3663: $\left(y, z, \frac{xz}{z+1}\right)$ 3921: $\left(x, \frac{x^2yz}{(x+1)(xz+x+1)}, z\right)$ 4051: $\left(\frac{x^2yz}{xyz+(y+1)^2}, y, \frac{xyz+(y+1)^2}{xy}\right)$
3273	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3817: $\left(x, z, \frac{xyz^2}{(z+1)(xz+(z+1)^2)}\right)$
3286	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{1}{xy^3z^2}$	2904: $\left(\frac{xyz+yz+1}{xz}, x, \frac{yz}{x}\right)$
3288	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3174: $\left(y, x, \frac{(x+1)^2}{xz}\right)$ 3253: $\left(y, x, \frac{xz}{x+1}\right)$ 3261: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, y\right)$ 3289: $\left(x, y, \frac{y+1}{z}\right)$
3289	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3288: $\left(x, y, \frac{y+1}{z}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
3301	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	$2681\colon \left(\frac{(y+1)(yz+(z+1)^2)}{xyz}, y, z\right)$ $3842\colon \left(x, \frac{(z+1)^2(xz+z+1)}{xyz^2}, z\right)$
3311	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	$2704\colon \left(\frac{(y+z+1)(yz+y+z)}{xyz}, y, \frac{y}{z}\right)$ $3842\colon \left(x, z, \frac{(z+1)(xz+z+1)}{xyz}\right)$
3388	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3yz^2}$	$3261\colon \left(x, \frac{y(xz+x+1)}{xz}, z\right)$
3417	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{1}{y}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	$3261\colon \left(\frac{(y+1)(xz+y+1)}{xy}, \frac{x^2yz}{(y+1)(xz+y+1)}, y\right)$
3421	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	$2976\colon \left(x, \frac{(xz+z+1)^2}{xyz^2}, z\right)$
3472	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{4}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	$2233\colon \left(\frac{(y+z)(xz^2+y+z)}{xz^2}, \frac{x^2yz^2}{(y+z)(xz^2+y+z)}, \frac{x^2z^3}{(y+z)(xz^2+y+z)}\right)$
3503	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^3yz}$	$3261\colon \left(x, \frac{xz+x+1}{xy}, z\right)$
3521	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{5}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	$2263\colon \left(\frac{(x+yz+z)^2}{xyz^2}, y, \frac{x}{z}\right)$
3523	$x+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	$2690\colon \left(\frac{(x+1)(xy+xz+z)}{x^2}, x, \frac{y}{z}\right)$
3524	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{5}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	$2690\colon \left(\frac{y(xz+x+z)}{xz}, x, z\right)$
3528	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	$3842\colon \left(x, z, \frac{z+1}{y}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
3539	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	$2704\colon \left(\frac{(x+1)(x+z+1)}{xy}, x, z\right)$
3639	$xy^2z^2+2xyz+x+yz^2+3yz+y+z+\frac{5z}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{10}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{10}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}+\frac{5}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	$2829\colon \left(x, \frac{x^2yz+(xz+y)^2}{x^2z}, \frac{y}{x^2yz+(xz+y)^2}\right)$
3650	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{6}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	$2626\colon \left(\frac{(z+1)(x+y)(xz+x+y)}{x^2yz}, z, \frac{x^3z^2}{(z+1)(x+y)(xz+x+y)}\right)$
3658	$x+\frac{x}{y}+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{5}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{3}{x^2yz^2}+\frac{2y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	$3261\colon \left(\frac{(xz+1)(xz+y+1)}{x^2z}, \frac{(xz+1)(xz+y+1)}{x^2yz}, \frac{x^3z^2}{(xz+1)(xz+y+1)}\right)$
3663	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	$1659\colon \left(\frac{y(x+1)^2}{x^2}, x, z\right)$ $2626\colon \left(\frac{y(z+1)(x+1)^2}{x^2z}, x, z\right)$ $2930\colon \left(\frac{y(x+1)}{x}, x, z\right)$ $3028\colon \left(\frac{(y+1)^2(x+1)}{xyz}, x, y\right)$ $3261\colon \left(\frac{z(y+1)}{y}, x, y\right)$ $3817\colon \left(\frac{x^2yz}{xyz+(z+1)^2}, \frac{xyz+(z+1)^2}{xz}, z\right)$ $3842\colon \left(\frac{x^2yz}{xyz+z+1}, \frac{xyz+z+1}{xz}, z\right)$ $4212\colon \left(\frac{x^3y^2z^2}{(xyz+y+1)(xyz+(y+1)^2)}, \frac{(xyz+y+1)(xyz+(y+1)^2)}{x^2y^2z}, y\right)$
3705	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	$2263\colon \left(\frac{x(z+1)(yz+z+1)}{yz^2}, z, y\right)$
3706	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{6}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	$2693\colon \left(\frac{y(x+1)(xz+z+1)}{x^2z}, x, z\right)$
3807	$x+\frac{x}{y}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{7}{xy}+\frac{4}{xyz}+\frac{8}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z^2}+\frac{z}{x^2}+\frac{4}{x^2y}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	$2904\colon \left(x, \frac{(xyz+yz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$

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Table 122 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 122a
3817	$x+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{5z}{x^2y}+\frac{10}{x^2y}+\frac{10}{x^2yz}+\frac{5}{x^2yz^2}+\frac{1}{x^2yz^3}$	3273: $\left(x, \frac{z(y+1)(xy+(y+1)^2)}{xy^2}, y\right)$ 3663: $\left(\frac{xyz+(z+1)^2}{yz}, \frac{xy^2z}{xyz+(z+1)^2}, z\right)$
3838	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{7}{xy}+\frac{5}{xyz}+\frac{3}{xy^2}+\frac{7}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z}+\frac{2}{xy^3z^2}+\frac{1}{xy^4z^2}$	2598: $\left(\frac{xyz+(y+z)^2}{y^2z}, x, \frac{y}{xz}\right)$
3842	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	2932: $\left(x, \frac{y(xz+z+1)^2}{x^2z^2}, z\right)$ 3301: $\left(x, \frac{(z+1)^2(xz+z+1)}{xyz^2}, z\right)$ 3311: $\left(x, \frac{(y+1)(xy+y+1)}{xyz}, y\right)$ 3528: $\left(x, \frac{y+1}{z}, y\right)$ 3663: $\left(\frac{xyz+z+1}{yz}, \frac{xy^2z}{xyz+z+1}, z\right)$
3921	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{9}{xyz}+\frac{4}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2y}+\frac{9}{x^2yz}+\frac{6}{x^2yz^2}+\frac{3}{x^3yz}+\frac{4}{x^3yz^2}+\frac{1}{x^4yz^2}$	3261: $\left(x, \frac{y(x+1)(xz+x+1)}{x^2z}, z\right)$
4051	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{5}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{11}{x^2z}+\frac{8}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3261: $\left(\frac{xyz+(y+1)^2}{yz}, y, \frac{xyz^2}{xyz+(y+1)^2}\right)$
4212	$x+y+z+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{6}{xz}+\frac{5}{xy}+\frac{6}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{y^2}{x^2z}+\frac{7y}{x^2z}+\frac{17}{x^2z}+\frac{19}{x^2yz}+\frac{10}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{15}{x^3z^2}+\frac{20}{x^3yz^2}+\frac{15}{x^3y^2z^2}+\frac{6}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3663: $\left(\frac{(xyz+z+1)(xyz+(z+1)^2)}{xy^2z^2}, z, \frac{x^2y^3z^2}{(xyz+z+1)(xyz+(z+1)^2)}\right)$

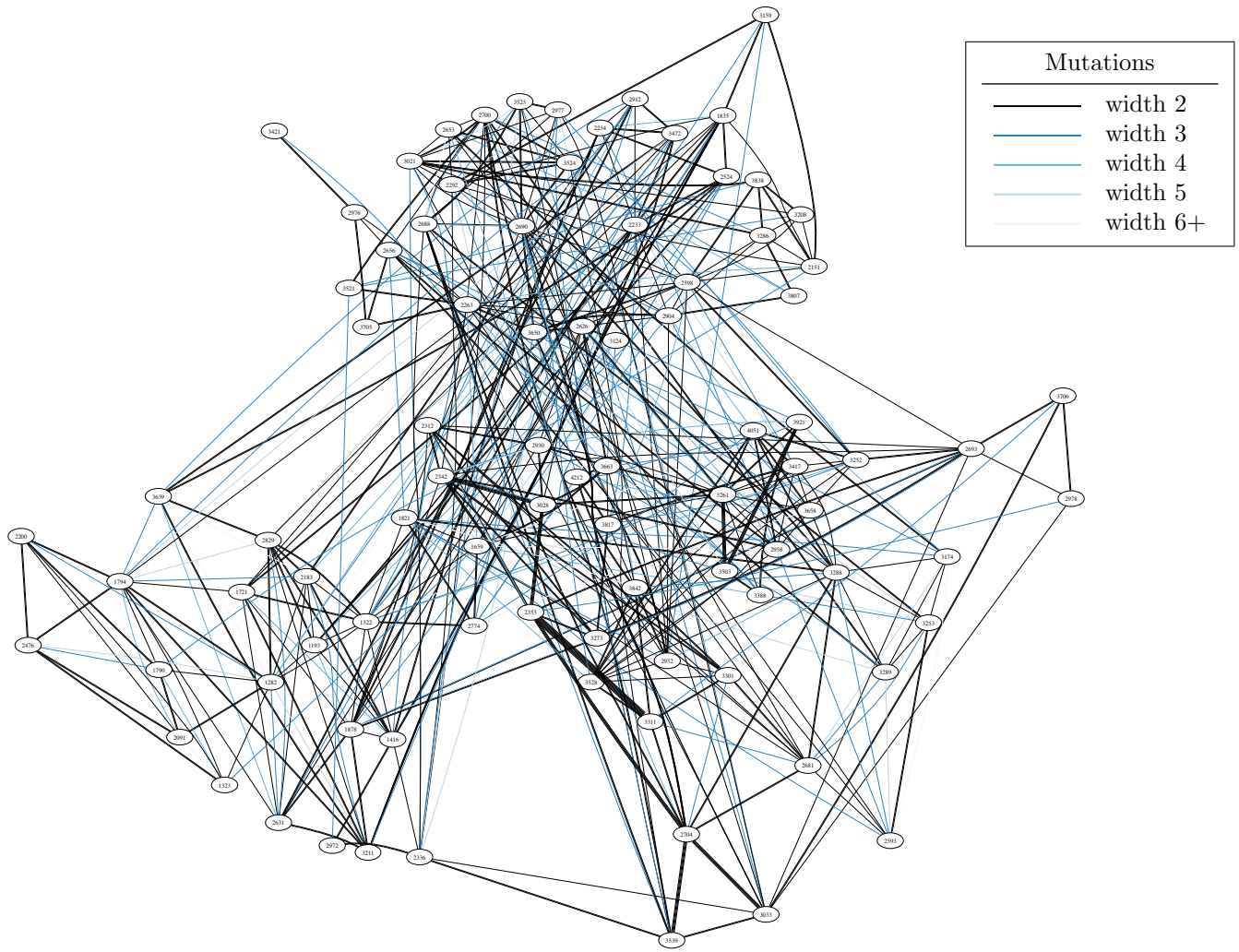
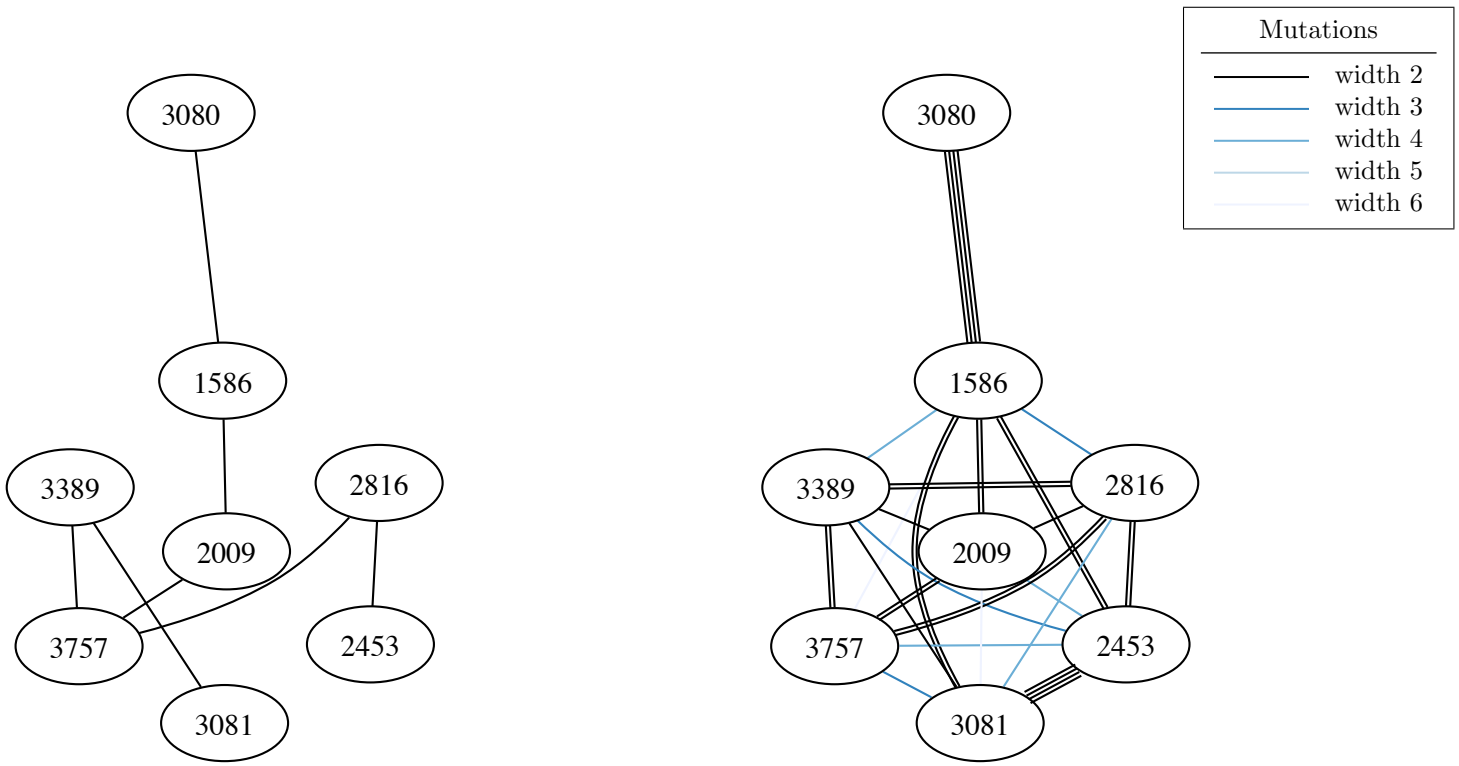


Figure 122b. All mutations between Minkowski polynomials in bucket 122

Bucket 123



(a) A spanning tree consisting of width-2 mutations

(b) All mutations

Figure 123. Mutations between Minkowski polynomials in bucket 123

Table 123. Laurent polynomials and selected mutations for bucket 123.

Node	Laurent polynomial	Mutations from Figure 123a
1586	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	2009: $\left(\frac{x^2}{x+z},\frac{xy}{x+z},\frac{yz}{x+z}\right)$ 3080: $\left(\frac{(xz+1)(xz+(xz+y)^2)}{x^3z^2},y,\frac{x^2y^2z}{(xz+1)(xz+(xz+y)^2)}\right)$
2009	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	1586: $\left(\frac{x(y+z)}{y},y+z,\frac{xz(y+z)}{y^2}\right)$ 3757: $\left(y,\frac{xy^2z}{y+z(y+1)^2},z\right)$
2453	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	2816: $\left(\frac{x^2}{x+z},\frac{x+z}{yz},\frac{x+z}{xy}\right)$
2816	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	2453: $\left(\frac{x(y+z)}{y},\frac{y+z}{yz},\frac{xz(y+z)}{y^2}\right)$ 3757: $\left(y,z,\frac{(y+z)^2}{xyz}\right)$
3080	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{2}{x^2z}+\frac{y^2}{x^3z^2}$	1586: $\left(\frac{xz+1}{z},y,\frac{y^2}{x(xz+1)}\right)$
3081	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	3389: $\left(\frac{z(x+y)}{x},\frac{x^2}{x+y},\frac{x^2}{yz(x+y)}\right)$
3389	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{3}{xyz}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	3081: $\left(\frac{y(xz+1)}{xz},\frac{y(xz+1)}{x^2z^2},\frac{x^2z}{xz+1}\right)$ 3757: $\left(y,z,\frac{(y+z)^2(y+z(y+1)^2)}{xy^3z^2}\right)$
3757	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{z^2}{xy^2}+\frac{6z}{xy^2}+\frac{6}{xy^2}+\frac{2z^2}{xy^3}+\frac{4z}{xy^3}+\frac{z^2}{xy^4}$	2009: $\left(\frac{y(x+z(x+1)^2)}{x^2z},x,z\right)$ 2816: $\left(\frac{(x+y)^2}{xyz},x,y\right)$ 3389: $\left(\frac{(x+y)^2(x+y(x+1)^2)}{x^3y^2z},x,y\right)$

Bucket 124

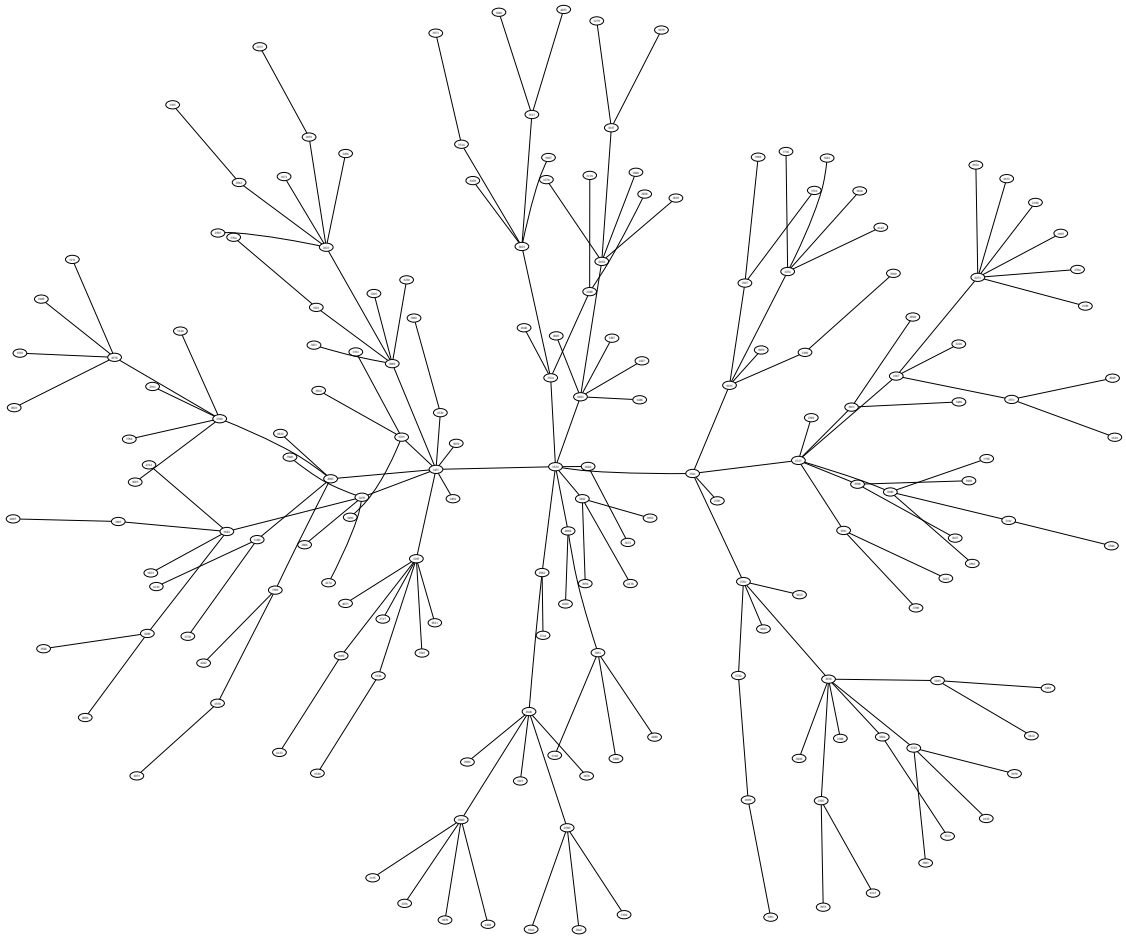


Figure 124a. Selected width-2 mutations between Minkowski polynomials in bucket 124

Table 124. Laurent polynomials and selected mutations for bucket 124.

Node	Laurent polynomial	Mutations from Figure 124a
1559	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{3yz}{x}+\frac{2}{x}+\frac{y^3z^2}{x^2}$	3055: $\left(\frac{(xyz+y+z)(xz^2+y(xz+1)^2)}{x^3yz^3}, \frac{(xyz+y+z)(xz^2+y(xz+1)^2)}{x^2y^2z}, \frac{xy^2}{(xyz+y+z)(xz^2+y(xz+1)^2)}\right)$ 3596: $\left(x, \frac{x^2y}{(x+yz)^2}, \frac{z(x+yz)^2}{x^2}\right)$
1592	$\frac{xy^2}{z^2}+\frac{2xy}{z}+x+y+\frac{4y}{z}+z+\frac{1}{y}+\frac{2z}{x}+\frac{6}{x}+\frac{z}{xy}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{z^2}{x^3y^2}$	2578: $\left(\frac{(xz+1)^2}{xz^2}, \frac{1}{y}, \frac{(xz+1)^2}{x^2yz^3}\right)$
1616	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	2571: $\left(y, x, \frac{xz}{x+1}\right)$
1695	$xy^2+2xy+x+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{2z}{xy}+\frac{1}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y^2}$	2271: $\left(x, y, \frac{xy}{z(xy+1)}\right)$
1784	$x+\frac{2x}{y}+\frac{x}{y^2}+yz+y+z+\frac{1}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2271: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, z\right)$
1792	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{3z}{x^2}+\frac{z}{x^3}$	2680: $\left(x, z, \frac{xy}{x+1}\right)$
1827	$\frac{xy}{z}+x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{1}{xy}$	2683: $\left(z, y, \frac{xy}{y+1}\right)$
2049	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{3z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{3z}{x^2}+\frac{1}{x^2y}+\frac{z}{x^3}$	2571: $\left(x, \frac{z(x+1)}{x}, \frac{xy}{x+1}\right)$
2108	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{1}{x^2z}$	2980: $\left(x, y, \frac{z(x+1)}{x}\right)$
2116	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2289: $\left(\frac{xy+x+yz}{xyz}, \frac{xy+x+yz}{x^2y}, y\right)$
2187	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{2y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{y}{x^2z^2}$	2271: $\left(\frac{yz+z+1}{xy^2}, \frac{yz+z+1}{xyz}, \frac{1}{z}\right)$ 2337: $\left(\frac{x(x+y)}{yz}, x+y, z\right)$ 2571: $\left(z, \frac{xyz+(x+y)^2}{x^2y}, \frac{xyz+(x+y)^2}{xy^2z}\right)$ 3226: $\left(y, \frac{x^2z}{xz+1}, \frac{x}{xz+1}\right)$
2188	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	2271: $\left(y(xy+1), \frac{xy+1}{x}, \frac{z(xy+1)}{xy}\right)$
2189	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{3}{y}+\frac{y^2}{xz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	2271: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{xy+1}{xyz}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2223	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	2595: $\left(y, \frac{x}{z}, \frac{xyz}{x+yz}\right)$ 2691: $\left(\frac{xz+x+yz}{xy}, \frac{x}{y}, \frac{xz+x+yz}{xyz}\right)$ 2963: $\left(y, \frac{yz}{x}, \frac{xyz}{x+yz+z}\right)$ 2989: $\left(y, \frac{z+1}{x}, z\right)$ 3456: $\left(\frac{(yz+y+z)^2}{xyz}, y, \frac{(yz+y+z)^2}{xyz^2}\right)$ 3671: $\left(y, z, \frac{xy^2z}{(y+z)(yz+y+z)}\right)$
2271	$xy^2+2xy+x+2y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}+\frac{1}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	1695: $\left(x, y, \frac{xy}{z(xy+1)}\right)$ 1784: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, z\right)$ 2187: $\left(\frac{xz^2+xz+y}{y^2}, \frac{y}{xz}, \frac{1}{z}\right)$ 2188: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, \frac{xz}{x+y}\right)$ 2189: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{x+y}{xz}\right)$ 2633: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, z\right)$ 2921: $\left(\frac{(yz+1)^2}{xy^2z^2}, \frac{xyz}{(yz+1)^2}, y\right)$
2289	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2}$	2116: $\left(\frac{xz+x+yz}{xyz}, z, \frac{xz+x+yz}{x^2z}\right)$ 2858: $\left(\frac{(y+z)(y^2+yz+z)}{xy^2z}, y, \frac{(y+z)(y^2+yz+z)}{xyz^2}\right)$ 3514: $\left(z, y, \frac{(y+1)(yz+z+1)}{xy}\right)$
2302	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{y}+\frac{2x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{x^2}$	2337: $\left(x, \frac{x(x+y)}{yz}, y\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2337	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y}{x^2}$	2187: $\left(\frac{xyz}{xz+y}, \frac{y^2}{xz+y}, z\right)$ 2302: $\left(x, z, \frac{x(x+z)}{yz}\right)$ 2680: $\left(\frac{xz+x+y}{xy}, \frac{xz+x+y}{x^2}, \frac{xz+x+y}{xyz}\right)$ 3011: $\left(\frac{xyz}{x+yz}, \frac{y^2z}{x+yz}, z\right)$ 3281: $\left(\frac{xz}{yz+y+z}, \frac{xy}{yz+y+z}, \frac{xyz}{yz+y+z}\right)$ 3508: $\left(\frac{xz}{(z+1)(y+z)}, \frac{xy}{(z+1)(y+z)}, \frac{1}{y}\right)$ 3541: $\left(z, \frac{(y+z)(y+z+1)}{xy}, y\right)$
2469	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{y^2}{x^3z^2}$	2578: $\left(\frac{(xz+1)^2}{x}, \frac{(xz+1)^2}{x^2yz^2}, \frac{1}{yz}\right)$
2480	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3951: $\left(x, \frac{(z+1)^3}{yz^2}, z\right)$
2494	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	3457: $\left(\frac{x^2}{x+y}, z, \frac{z(x+y)}{xy}\right)$
2500	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	2646: $\left(\frac{(x+y)(x+y+z)}{xyz}, \frac{(x+y)(x+y+z)}{x^2y}, \frac{y}{z}\right)$ 2847: $\left(x, \frac{x+yz}{y}, \frac{y^2z}{x+yz}\right)$ 3394: $\left(x, \frac{xyz+(y+z)^2}{y^2z}, \frac{xyz^2}{xyz+(y+z)^2}\right)$ 3942: $\left(y, \frac{x^2y^2z}{y+xz(y+1)^2}, \frac{y+xz(y+1)^2}{xy^2}\right)$
2520	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{y^2}{x^2z}$	2578: $\left(\frac{xyz^2+1}{xz^2}, \frac{xyz^2+1}{x^2yz^3}, \frac{xyz^2+1}{x^2yz^2}\right)$ 2763: $\left(\frac{(yz+1)(xyz+x+y)}{xy}, \frac{(yz+1)(xyz+x+y)}{x^2yz}, \frac{(yz+1)(xyz+x+y)}{x^2y^2z^2}\right)$ 2985: $\left(x, \frac{xyz}{xz+y}, \frac{xz^2}{xz+y}\right)$ 3144: $\left(\frac{(x+y^2z)(xyz+x+y^2z)}{xy^3z}, \frac{(x+y^2z)(xyz+x+y^2z)}{xy^4z^2}, \frac{(x+y^2z)(xyz+x+y^2z)}{x^2y^3z^2}\right)$ 3603: $\left(\frac{(xyz+xz+1)^2}{x^2z}, y, \frac{x^3y^2z^2}{(xyz+xz+1)^2}\right)$ 3768: $\left(\frac{(z+1)(xy+1)(xyz+xy+1)}{x^2y}, \frac{(z+1)(xy+1)(xyz+xy+1)}{x^3y^2z}, \frac{(z+1)(xy+1)(xyz+xy+1)}{x^3y^2z^2}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2539	$\frac{x^3}{y^3z^2}+\frac{x^2}{yz}+\frac{3x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{3x}{yz}+\frac{2x}{y^2z}+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	3061: $\left(\frac{(x^2z^2+xyz+y)^2}{x^2y^2z},\frac{(x^2z^2+xyz+y)^2}{x^3y^2z^2},y\right)$ 3457: $\left(z,\frac{(x+y)(xz+yz+y)}{x^2y},\frac{x^3z}{(x+y)(xz+yz+y)}\right)$
2565	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2680: $\left(x,y,\frac{xz}{x+1}\right)$
2571	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1616: $\left(y,x,\frac{z(y+1)}{y}\right)$ 2049: $\left(x,\frac{z(x+1)}{x},\frac{xy}{x+1}\right)$ 2187: $\left(\frac{x^2yz+(xz+y)^2}{xy^2z},\frac{x^2yz+(xz+y)^2}{x^2yz^2},x\right)$
2578	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2yz^2}+\frac{1}{x^2yz^3}$	1592: $\left(\frac{x^3y^2}{(xy+z)^2},\frac{1}{y},\frac{(xy+z)^2}{x^2yz}\right)$ 2469: $\left(\frac{(xz+y)^2}{xy^2},\frac{(xz+y)^2}{x^2yz^2},\frac{x^2yz}{(xz+y)^2}\right)$ 2520: $\left(\frac{xz+y^2}{xz^2},\frac{x^2z}{xz+y^2},\frac{z}{y}\right)$ 2923: $\left(\frac{x^3z}{(x+y)(xz+y)},z,\frac{(x+y)(xz+y)}{x^2yz}\right)$ 3151: $\left(\frac{(xz+1)^2}{x},\frac{1}{y},\frac{x^2z}{(xz+1)^2}\right)$
2595	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2}$	2223: $\left(\frac{z(x+y)}{x},x,\frac{z(x+y)}{xy}\right)$
2605	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2683: $\left(\frac{z(y+1)}{y},x,\frac{x}{y}\right)$
2633	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	2271: $\left(y(xy+1),\frac{xy+1}{x},z\right)$
2646	$x+\frac{x}{z}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2500: $\left(\frac{(x+yz)(x+yz+y)}{xy^2z},\frac{(x+yz)(x+yz+y)}{x^2y},\frac{(x+yz)(x+yz+y)}{x^2yz}\right)$ 2902: $\left(x,y,\frac{xy+x+y}{yz}\right)$ 2980: $\left(y,z,\frac{y+z}{x}\right)$ 2982: $\left(x,\frac{xyz}{xy+x+y},y\right)$ 3415: $\left(\frac{(y+1)(y+z)(y+z+1)}{xyz},\frac{(y+1)(y+z)(y+z+1)}{xy^2},\frac{(y+1)(y+z)(y+z+1)}{xy^2z}\right)$ 3678: $\left(y,z,\frac{(y+z)(yz+y+z)}{xyz}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2648	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}$	3514: $\left(\frac{xy}{y+1}, y, z\right)$
2658	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	2683: $\left(x, \frac{y+1}{z}, y\right)$ 2840: $\left(\frac{xy}{y+1}, z, \frac{x}{y+1}\right)$ 3037: $\left(\frac{z(y+1)}{x}, y, \frac{y+1}{x}\right)$ 3278: $\left(\frac{x^2z}{xz+y}, z, \frac{xyz}{xz+y}\right)$ 3829: $\left(\frac{(z+1)(y+1)^2}{xy}, y, \frac{(z+1)(y+1)^2}{xyz}\right)$
2680	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1792: $\left(x, \frac{z(x+1)}{x}, y\right)$ 2337: $\left(\frac{x^2+xz+yz}{xyz}, \frac{x^2+xz+yz}{x^2z}, \frac{x}{z}\right)$ 2565: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3161: $\left(x, y, \frac{(x+1)(x+y)}{xyz}\right)$
2683	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1827: $\left(\frac{z(y+1)}{y}, y, x\right)$ 2605: $\left(y, \frac{y}{z}, \frac{xy}{y+z}\right)$ 2658: $\left(x, z, \frac{z+1}{y}\right)$ 3287: $\left(\frac{(z+1)^2(y+1)}{xz}, y, z\right)$ 3486: $\left(y, z, \frac{(z+1)(yz+y+z)}{xyz}\right)$ 3522: $\left(y, \frac{xyz}{(z+1)(y+z+1)}, z\right)$
2684	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{yz}{x^2}$	3233: $\left(y, \frac{(z+1)(yz+z+1)}{xz}, \frac{xyz^2}{(z+1)(yz+z+1)}\right)$ 3522: $\left(\frac{xy}{y+z+1}, y, \frac{xz}{y+z+1}\right)$
2691	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2223: $\left(\frac{xy+x+yz}{xz}, \frac{xy+x+yz}{xyz}, \frac{x}{z}\right)$ 3237: $\left(x, z, \frac{(x+1)(xz+x+z)}{xyz}\right)$
2699	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}$	3291: $\left(\frac{(yz+y+z)^2}{xy^2z}, \frac{(yz+y+z)^2}{xyz}, \frac{(yz+y+z)^2}{xyz^2}\right)$ 3722: $\left(\frac{xyz}{(z+1)(y+1)}, z, y\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2701	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{z}{xy}$	3015: $\left(z, \frac{yz}{x}, \frac{z+1}{x}\right)$ 3023: $\left(y, z, \frac{y+z}{x}\right)$ 3038: $\left(z, y, \frac{xy}{y+1}\right)$ 3541: $\left(\frac{xy}{y+z+1}, \frac{xz}{y+z+1}, \frac{x}{y+z+1}\right)$ 3722: $\left(y, z, \frac{xyz^2}{(z+1)(yz+y+z)}\right)$
2703	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{1}{x}$	3541: $\left(y, \frac{xyz}{(z+1)(y+z)}, z\right)$
2763	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2520: $\left(\frac{(y+z)(xy+xz+y^2)}{xy^2z}, \frac{(y+z)(xy+xz+y^2)}{x^2z^2}, \frac{x^2yz}{(y+z)(xy+xz+y^2)}\right)$
2832	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{1}{xy^2z}$	2985: $\left(x, y+z, \frac{y}{z(y+z)}\right)$
2840	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2658: $\left(x+z, \frac{x}{z}, y\right)$
2847	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	2500: $\left(x, \frac{x+yz}{y}, \frac{y^2z}{x+yz}\right)$
2858	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{2z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	2289: $\left(\frac{(x+z)(xy+x+yz)}{x^2yz}, y, \frac{xy}{z}\right)$
2898	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3011: $\left(x, y, \frac{xyz}{xy+x+y}\right)$
2902	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2646: $\left(x, y, \frac{xy+x+y}{yz}\right)$
2911	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	3297: $\left(x, \frac{yz+1}{z}, \frac{x}{yz}\right)$
2921	$x+y^2z+yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{y^2z^2}{x}+\frac{3y^2z}{x}+\frac{4yz}{x}+\frac{3y}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2271: $\left(\frac{(xy+1)^2}{x}, z, \frac{1}{xyz}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2923	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{y^2}{x^2z}+\frac{y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	2578: $\left(\frac{(xz+1)(xyz+1)}{xyz^2},\frac{(xz+1)(xyz+1)}{x^2yz^3},y\right)$
2963	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	2223: $\left(\frac{z(xy+x+y)}{xy},x,\frac{z(xy+x+y)}{x^2}\right)$ 3395: $\left(x,\frac{(xz+z+1)^2}{xyz},\frac{x^2yz^2}{(xz+z+1)^2}\right)$
2980	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2108: $\left(x,y,\frac{xz}{x+1}\right)$ 2646: $\left(\frac{x+y}{z},x,y\right)$ 3155: $\left(x,\frac{xy}{x+1},\frac{xz}{x+1}\right)$ 3276: $\left(y,x,\frac{xyz}{(y+1)(x+1)}\right)$ 3839: $\left(z,y,\frac{xy^2z}{(z+1)(y+1)^2}\right)$
2982	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2646: $\left(x,z,\frac{y(xz+x+z)}{xz}\right)$ 3522: $\left(\frac{(y+z+1)(yz+(z+1)^2)}{xyz},\frac{(y+z+1)(yz+(z+1)^2)}{xyz^2},y\right)$ 3714: $\left(y,z,\frac{(y+z)^2(yz+y+z)}{xy^2z^2}\right)$
2985	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xy}$	2520: $\left(x,\frac{y(xz+y)}{xz},\frac{xz+y}{x}\right)$ 2832: $\left(x,\frac{y^2z}{yz+1},\frac{y}{yz+1}\right)$ 3180: $\left(x,\frac{xyz}{xz+y},\frac{xz^2}{xz+y}\right)$ 3457: $\left(\frac{(z+1)^2}{yz},z,\frac{xz^2}{(z+1)^2}\right)$ 3596: $\left(x,\frac{(yz+1)^2(x+yz)}{xy^2z},\frac{(yz+1)^2(x+yz)}{xy^3z^2}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
2989	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2223: $\left(\frac{z+1}{y},x,z\right)$ 3221: $\left(x,\frac{y^2z}{x+yz},\frac{xy}{x+yz}\right)$ 3230: $\left(x,\frac{xy^2}{xy+z},\frac{xyz}{xy+z}\right)$ 3305: $\left(y,\frac{yz+z+1}{x},\frac{yz+z+1}{xz}\right)$ 3457: $\left(\frac{x^2z}{(z+1)(x+y)},\frac{(z+1)(x+y)}{xy},z\right)$ 3831: $\left(y,\frac{(yz+z+1)^2}{xyz},\frac{(yz+z+1)^2}{xyz^2}\right)$
3011	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2337: $\left(\frac{x(x+yz)}{yz},\frac{x+yz}{z},z\right)$ 2898: $\left(x,y,\frac{z(xy+x+y)}{xy}\right)$ 3466: $\left(x,y,\frac{(x+y)(xy+x+y)}{xy^2z}\right)$
3015	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2701: $\left(\frac{x+1}{z},\frac{y(x+1)}{xz},x\right)$
3020	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	3038: $\left(x,\frac{(x+1)^2}{xz},\frac{(x+1)^2}{xy}\right)$
3023	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2701: $\left(\frac{x+y}{z},x,y\right)$
3024	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	3038: $\left(x,y,\frac{z(x+1)}{x}\right)$ 3713: $\left(y,\frac{xy^2z}{(y+1)(yz+y+1)},z\right)$
3025	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	3299: $\left(y,\frac{xy}{y+1},z\right)$ 3514: $\left(\frac{xz}{z+1},\frac{x}{z+1},y\right)$ 3517: $\left(y,\frac{y+z+1}{x},z\right)$ 3534: $\left(x,\frac{xyz}{xz+z+1},z\right)$ 3987: $\left(y,\frac{xy^2z}{(y+1)(yz+z+1)},z\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3035	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3269: $\left(x, \frac{xy}{x+z+1}, \frac{x+z+1}{yz}\right)$ 3274: $\left(x, \frac{xz+y+z}{yz}, \frac{xz^2}{xz+y+z}\right)$ 3307: $\left(y, \frac{y(z+1)}{x}, \frac{xz}{z+1}\right)$ 3541: $\left(\frac{xz}{z+1}, \frac{x}{z+1}, y\right)$ 3859: $\left(y, \frac{xy^2}{(y+1)(y+z+1)}, \frac{(y+1)(y+z+1)}{xyz}\right)$
3037	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	2658: $\left(\frac{y+1}{z}, y, \frac{x}{z}\right)$ 3279: $\left(y, \frac{yz+y+1}{x}, \frac{xyz}{yz+y+1}\right)$ 3679: $\left(y, \frac{xy^2}{(y+1)(yz+y+z)}, \frac{(y+1)(yz+y+z)}{xyz}\right)$
3038	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2701: $\left(\frac{z(y+1)}{y}, y, x\right)$ 3020: $\left(x, \frac{(x+1)^2}{xz}, \frac{(x+1)^2}{xy}\right)$ 3024: $\left(x, \frac{xz}{x+1}, y\right)$ 3293: $\left(y, \frac{(z+1)(y+1)}{x}, \frac{(z+1)(y+1)}{xz}\right)$ 3308: $\left(y, \frac{y+z+1}{x}, z\right)$ 3707: $\left(y, \frac{xyz}{(z+1)(y+1)}, \frac{xy}{(z+1)(y+1)}\right)$ 3723: $\left(y, \frac{(y+1)(y+z+1)}{xy}, z\right)$
3055	$xz^2+2xz+x+y+3z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{3y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{z^2}{xy^2}+\frac{3y}{x^2z^2}+\frac{4}{x^2z}+\frac{2}{x^2y}+\frac{y}{x^3z^3}+\frac{1}{x^3z^2}$	1559: $\left(\frac{(xyz+x+y^3z^2)(y^3z^2+x(yz+1)^2)}{x^2y^3z^2}, \frac{x^3}{(xyz+x+y^3z^2)(y^3z^2+x(yz+1)^2)}, \frac{x^2y^2z}{(xyz+x+y^3z^2)(y^3z^2+x(yz+1)^2)}\right)$
3061	$\frac{x^3z^3}{y^2}+\frac{x^3z^4}{y^3}+\frac{3x^2z^2}{y}+\frac{3x^2z^3}{y^2}+3xz+x+\frac{3xz^2}{y}+\frac{3xz}{y}+\frac{3xz^2}{y^2}+y+z+\frac{6z}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	2539: $\left(\frac{(x^2+xyz+y^2z)^2}{x^2y^3z^2}, z, \frac{x^3y^2z^2}{(x^2+xyz+y^2z)^2}\right)$
3099	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{2y}{x^2z^2}+\frac{3}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	3588: $\left(\frac{xz+(yz+1)^2}{y^2z}, \frac{xy^2z^2}{xz+(yz+1)^2}, \frac{y^3z^2}{xz+(yz+1)^2}\right)$ 3682: $\left(\frac{(xz+1)(xz+yz+1)}{x^2z}, \frac{x}{y}, \frac{x^3z^2}{(xz+1)(xz+yz+1)}\right)$ 4096: $\left(\frac{x^3y^2}{xz+(xy+1)^2}, \frac{xz+(xy+1)^2}{x^2y}, \frac{z(xz+(xy+1)^2)}{x^2y^2}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3144	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xyz}+\frac{y}{x^2}$	2520: $\left(\frac{(xz+y^2)(xy+xz+y^2)}{x^2yz^2},\frac{(xz+y^2)(xy+xz+y^2)}{x^2y^2z},\frac{x^3yz}{(xz+y^2)(xy+xz+y^2)}\right)$
3151	$xz^2+2xz+x+yz+y+4z+\frac{1}{y}+\frac{4y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{4y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{y}{x^4z^3}$	2578: $\left(\frac{(xz+1)^2}{x},\frac{1}{y},\frac{x^2z}{(xz+1)^2}\right)$
3155	$x+\frac{x}{z}+\frac{x}{y}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{1}{x^2z}+\frac{2}{x^2y}+\frac{z}{x^2y^2}$	2980: $\left(x,\frac{y(x+1)}{x},\frac{z(x+1)}{x}\right)$
3160	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3951: $\left(x,\frac{(z+1)^3(x+z+1)}{xyz^2},z\right)$
3161	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2680: $\left(x,y,\frac{(x+1)(x+y)}{xyz}\right)$ 3586: $\left(y,\frac{xy^2}{(y+1)^2},\frac{z(y+1)^2}{y^2}\right)$
3180	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{2y}{xz^2}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z^3}+\frac{2y}{x^2z^2}+\frac{1}{x^2z}$	2985: $\left(x,\frac{y(xz+y)}{xz},\frac{xz+y}{x}\right)$ 3770: $\left(\frac{(yz+1)(x+y^2z+y)}{y^3z},\frac{xy^3z^2}{(yz+1)(x+y^2z+y)},\frac{y^4z^2}{(yz+1)(x+y^2z+y)}\right)$ 4110: $\left(\frac{x^2y^2z}{xy^2z+(y+z)^2},\frac{xy^2z+(y+z)^2}{xyz},\frac{xy^2z+(y+z)^2}{xy^2}\right)$
3221	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{z}{x^2}$	2989: $\left(x,y+z,\frac{xy}{z(y+z)}\right)$ 3764: $\left(\frac{(y+z+1)(yz+(z+1)^2)}{xyz^2},y,\frac{(y+z+1)(yz+(z+1)^2)}{xy^2z}\right)$
3226	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{3z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^2}$	2187: $\left(y+z,x,\frac{y}{z(y+z)}\right)$
3230	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{2}{x}+\frac{1}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{1}{x^2y}+\frac{2z}{x^2y^2}+\frac{z^2}{x^2y^3}$	2989: $\left(x,\frac{xy+z}{x},\frac{z(xy+z)}{xy}\right)$
3233	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2684: $\left(\frac{(x+yz)(xyz+x+yz)}{xy^2z},x,\frac{yz}{x}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3235	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3361: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 3457: $\left(\frac{(z+1)^2(x+y)}{xyz}, \frac{(z+1)^2(x+y)}{x^2z}, z\right)$ 3496: $\left(x, z, \frac{xy}{x+z}\right)$ 3912: $\left(x, z, \frac{x^2yz}{(x+z)(xz+x+z)}\right)$
3237	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{z}{x^2}+\frac{1}{x^2y}$	2691: $\left(x, \frac{(x+1)(xy+x+y)}{xyz}, y\right)$
3269	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3035: $\left(x, \frac{xyz+x+yz}{xz}, \frac{x}{yz}\right)$ 3969: $\left(\frac{(yz+z+1)(yz+(z+1)^2)}{xyz^2}, y, \frac{1}{z}\right)$
3274	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{y}{x^2z^2}+\frac{2}{x^2z}+\frac{1}{x^2y}$	3035: $\left(x, \frac{xyz+x+yz}{y^2z}, \frac{xyz+x+yz}{xy}\right)$ 3681: $\left(x, \frac{xyz}{xz+x+1}, z\right)$ 3716: $\left(y, \frac{xyz}{yz+1}, z\right)$ 3834: $\left(y, \frac{yz+(y+1)^2}{xy}, z\right)$ 4142: $\left(y, \frac{xy^2z^2}{(yz+1)(yz+y+1)}, z\right)$
3276	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	2980: $\left(y, x, \frac{z(y+1)(x+1)}{xy}\right)$
3278	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	2658: $\left(\frac{(y+1)^2}{yz}, \frac{(y+1)^2}{xy}, y\right)$
3279	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	3037: $\left(\frac{x+yz+1}{y}, x, \frac{yz}{x}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3281	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	2337: $\left(x+y+z,\frac{x}{z},\frac{x^2}{yz}\right)$ 3423: $\left(x,\frac{xz}{y(xz+y+z)},\frac{xz^2}{y^2(xz+y+z)}\right)$ 3769: $\left(x,\frac{(yz+1)(xyz+yz+1)}{xy^2z},\frac{(yz+1)(xyz+yz+1)}{xy}\right)$
3287	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	2683: $\left(\frac{(z+1)^2(y+1)}{xz},y,z\right)$
3290	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3951: $\left(x,\frac{(z+1)^2(x+z+1)}{xyz},\frac{(z+1)^2(x+z+1)}{xyz^2}\right)$
3291	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	2699: $\left(\frac{(x+y+z)^2}{xyz},\frac{y}{x},\frac{y}{z}\right)$
3293	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3038: $\left(\frac{(y+z)(x+1)}{yz},x,\frac{y}{z}\right)$ 3463: $\left(x,y,\frac{x+y+1}{xz}\right)$ 3812: $\left(x,y,\frac{xyz}{(y+1)(x+y+1)}\right)$
3297	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2911: $\left(x,\frac{xy}{x+z},\frac{x+z}{yz}\right)$ 3457: $\left(\frac{(z+1)(xz+yz+y)}{xyz},\frac{(z+1)(xz+yz+y)}{xyz^2},\frac{x^2z^2}{(z+1)(xz+yz+y)}\right)$ 3526: $\left(x,\frac{xz+y}{yz},\frac{xz^2}{xz+y}\right)$ 3545: $\left(x,\frac{xy}{x+1},\frac{z(x+1)}{x}\right)$ 3699: $\left(x,\frac{x+yz+1}{y},\frac{y^2z}{x+yz+1}\right)$ 3717: $\left(x,\frac{x^2yz}{(x+1)(xz+1)},\frac{(x+1)(xz+1)}{xy}\right)$ 4073: $\left(y,\frac{(y+z)(yz+y+z)}{xyz},\frac{xy^2}{(y+z)(yz+y+z)}\right)$
3299	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3025: $\left(\frac{y(x+1)}{x},x,z\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3305	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2989: $\left(\frac{xy+y+z}{yz}, x, \frac{y}{z}\right)$
3307	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3035: $\left(\frac{x+yz}{y}, x, \frac{yz}{x}\right)$ 3516: $\left(y, x, \frac{yz}{x+y+1}\right)$ 3988: $\left(x, y, \frac{(x+1)(x+y+1)}{xyz}\right)$
3308	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3038: $\left(\frac{x+z+1}{y}, x, z\right)$
3361	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{3}{xyz}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	3235: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$
3394	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	2500: $\left(x, \frac{x^2yz+(x+yz)^2}{xy^2z}, \frac{x^2yz+(x+yz)^2}{x^2y}\right)$
3395	$x+\frac{xz}{y}+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2yz}+\frac{1}{x^2yz^2}$	2963: $\left(x, \frac{(xyz+x+yz)^2}{x^2y^2z}, \frac{yz}{x}\right)$
3415	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{xz}+\frac{3y}{x}+\frac{3z}{x}+\frac{7}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{5}{xy}+\frac{1}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2646: $\left(\frac{(x+z)(x+y)(x+y+z)}{x^2yz}, \frac{x}{z}, \frac{y}{z}\right)$
3423	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{3y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	3281: $\left(x, \frac{xz}{y(xz+y+z)}, \frac{xz^2}{y^2(xz+y+z)}\right)$
3456	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	2223: $\left(\frac{(xy+x+yz)^2}{x^2yz}, y, \frac{x}{z}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3457	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{yz}{x^2}+\frac{3y}{x^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}$	2494: $\left(\frac{xz+y}{z}, \frac{y(xz+y)}{xz^2}, y\right)$ 2539: $\left(\frac{(x+yz)(x+yz+1)}{y^2z}, \frac{x(x+yz)(x+yz+1)}{y^3z^2}, x\right)$ 2985: $\left(\frac{xz+y+1}{z}, \frac{y(xz+y+1)}{xz^2}, y\right)$ 2989: $\left(\frac{(z+1)(xy+z)}{yz}, \frac{(z+1)(xy+z)}{xy^2}, z\right)$ 3235: $\left(\frac{(z+1)^2(x+y)}{xyz}, \frac{(z+1)^2(x+y)}{x^2z}, z\right)$ 3297: $\left(\frac{(x+y)(xyz+x+y)}{x^2y}, \frac{(x+y)(xyz+x+y)}{x^2y^2z}, \frac{x}{y}\right)$ 3470: $\left(\frac{(yz+1)(x+y)(xyz+x+y)}{x^2y^2z}, \frac{(yz+1)(x+y)(xyz+x+y)}{x^2y^3z^2}, \frac{x}{y}\right)$ 3522: $\left(x, \frac{xyz}{xz+(z+1)^2}, z\right)$ 3959: $\left(\frac{(y+1)^2(xz+y)(xz+y+1)}{x^2y^2z}, \frac{(y+1)^2(xz+y)(xz+y+1)}{x^3yz^2}, y\right)$
3463	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	3293: $\left(x, y, \frac{x+y+1}{xz}\right)$
3466	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3011: $\left(x, y, \frac{(x+y)(xy+x+y)}{xy^2z}\right)$
3470	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{5}{xyz}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3457: $\left(\frac{(z+1)(x+y)(xz+yz+y)}{x^2yz}, \frac{(z+1)(x+y)(xz+yz+y)}{x^2yz^2}, \frac{x^3z^2}{(z+1)(x+y)(xz+yz+y)}\right)$ 3682: $\left(x, \frac{yz+1}{z}, \frac{yz^2}{yz+1}\right)$ 3866: $\left(y, \frac{xy^2z}{y^2z+yz+1}, \frac{y^2z+yz+1}{xy}\right)$ 3940: $\left(x, \frac{xyz+(yz+1)^2}{y^2z}, \frac{y^3z^2}{xyz+(yz+1)^2}\right)$ 4174: $\left(x, \frac{x^2y^3z^2}{(xyz+yz+1)^2}, \frac{(xyz+yz+1)^2}{x^2y^2z}\right)$
3486	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2683: $\left(\frac{(y+1)(xy+x+y)}{xyz}, x, y\right)$
3496	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z}{x^2}+\frac{2z^2}{x^2y}+\frac{3z}{x^2y}+\frac{z^2}{x^3y}$	3235: $\left(x, \frac{z(x+y)}{x}, y\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3508	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2337: $\left(\frac{(x+y)(x+yz)}{yz}, \frac{1}{z}, \frac{x}{yz}\right)$ 3627: $\left(x, \frac{xz}{xyz+(yz+1)^2}, \frac{xyz^2}{xyz+(yz+1)^2}\right)$ 3930: $\left(x, \frac{xyz}{(y+z)(xyz+(y+z)^2)}, \frac{xz^2}{(y+z)(xyz+(y+z)^2)}\right)$
3514	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2289: $\left(\frac{(y+1)(xy+x+1)}{yz}, y, x\right)$ 2648: $\left(\frac{x(y+1)}{y}, y, z\right)$ 3025: $\left(x+y, z, \frac{x}{y}\right)$ 3522: $\left(x, \frac{(z+1)^2}{yz}, z\right)$
3516	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	3307: $\left(y, x, \frac{z(x+y+1)}{x}\right)$
3517	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3025: $\left(\frac{x+z+1}{y}, x, z\right)$ 3646: $\left(x, y, \frac{xyz}{xy+y+1}\right)$ 4053: $\left(x, y, \frac{xy^2z}{(y+1)(xy+y+1)}\right)$
3520	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	3526: $\left(\frac{y(xz+1)}{xz}, x, z\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3522	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2683: $\left(\frac{y(z+1)(x+z+1)}{xz}, x, z\right)$ 2684: $\left(\frac{xy+x+yz}{y}, y, \frac{yz}{x}\right)$ 2982: $\left(\frac{(x+yz+y)(xyz+(x+y)^2)}{x^2y^2z}, z, \frac{x}{y}\right)$ 3457: $\left(x, \frac{y(xz+(z+1)^2)}{xz}, z\right)$ 3514: $\left(x, \frac{(z+1)^2}{yz}, z\right)$ 3541: $\left(x, \frac{y(z+1)}{z}, z\right)$ 3862: $\left(x, \frac{(z+1)(xz+(z+1)^2)}{xyz}, z\right)$ 4068: $\left(x, \frac{(z+1)^2(xz+(z+1)^2)}{xyz^2}, z\right)$
3526	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xy}+\frac{2y}{x^2z}+\frac{2y}{x^2z^2}+\frac{2}{x^2z}+\frac{y}{x^3z^2}$	3297: $\left(x, \frac{x(yz+1)}{y^2z}, \frac{yz+1}{y}\right)$ 3520: $\left(y, \frac{xyz}{yz+1}, z\right)$
3534	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3025: $\left(x, \frac{y(xz+z+1)}{xz}, z\right)$ 3971: $\left(\frac{(yz+z+1)(yz+(z+1)^2)}{xyz^2}, y, z\right)$
3541	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	2337: $\left(\frac{(x+z)(x+z+1)}{yz}, z, x\right)$ 2701: $\left(x+y+z, \frac{x}{z}, \frac{y}{z}\right)$ 2703: $\left(\frac{y(z+1)(x+z)}{xz}, x, z\right)$ 3035: $\left(x+y, z, \frac{x}{y}\right)$ 3522: $\left(x, \frac{yz}{z+1}, z\right)$
3545	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	3297: $\left(x, \frac{y(x+1)}{x}, \frac{xz}{x+1}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3586	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{6}{xy}+\frac{2}{xyz}+\frac{2}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	3161: $\left(\frac{y(x+1)^2}{x^2}, x, \frac{x^2z}{(x+1)^2}\right)$
3588	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{4}{xz}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{3}{xy^2z^2}+\frac{y}{x^2}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	3099: $\left(\frac{y(xy+(xz+1)^2)}{x^2z^2}, \frac{xy+(xz+1)^2}{x^2z}, \frac{x^3z^2}{xy+(xz+1)^2}\right)$
3596	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{3yz}{x}+\frac{6z}{x}+\frac{2}{x}+\frac{6}{xy}+\frac{2}{xy^2z}+\frac{y^2z^3}{x^2}+\frac{3yz^2}{x^2}+\frac{3z}{x^2}+\frac{1}{x^2y}$	1559: $\left(x, \frac{y(x+yz)^2}{x^2}, \frac{x^2z}{(x+yz)^2}\right)$ 2985: $\left(x, \frac{(y+z)^2(xz+y)}{xy^2z^2}, \frac{xy^3z}{(y+z)^2(xz+y)}\right)$ 4242: $\left(\frac{(xy+xz+1)(xy+(xz+1)^2)}{x^2y}, \frac{x^3y^2}{(xy+xz+1)(xy+(xz+1)^2)}, \frac{z(xy+xz+1)(xy+(xz+1)^2)}{x^2y^2}\right)$
3603	$x+y^2z+2yz+y+z+\frac{2}{y}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{6}{x^2z}+\frac{8}{x^2yz}+\frac{1}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{4}{x^3yz^2}+\frac{3}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2520: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, \frac{x^3z^2}{(xyz+xz+y^2)^2}\right)$
3605	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{2y}{x^2z^2}+\frac{6}{x^2z}+\frac{2y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{y^2}{x^4z^3}$	3682: $\left(\frac{(yz+1)^2(xz+yz+1)}{xy^2z^2}, \frac{x}{y}, \frac{x^2y^2z^3}{(yz+1)^2(xz+yz+1)}\right)$ 4085: $\left(x, \frac{(x^2yz+(x+yz)^2)^2}{x^4y^2z}, \frac{(x^2yz+(x+yz)^2)^2}{x^4y^3z^2}\right)$
3627	$x+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{3yz}{x}+\frac{4y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	3508: $\left(x, \frac{xz}{xyz+(y+z)^2}, \frac{xyz+(y+z)^2}{xy}\right)$
3646	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{3}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	3517: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$
3671	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2223: $\left(\frac{z(x+y)(xy+x+y)}{x^2y}, x, y\right)$
3678	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	2646: $\left(\frac{(x+y)(xy+x+y)}{xyz}, x, y\right)$
3679	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{6z}{xy}+\frac{6}{xy}+\frac{1}{xyz}+\frac{4z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	3037: $\left(\frac{(x+1)(x+yz+1)}{xz}, x, \frac{x}{yz}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3681	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3yz}$	3274: $\left(x, \frac{y(xz+x+1)}{xz}, z\right)$
3682	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{2}{xy^2z^2}+\frac{y}{x^2}+\frac{3}{x^2z}+\frac{3}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	3099: $\left(\frac{(xz+1)(xyz+xz+y)}{x^2yz}, \frac{(xz+1)(xyz+xz+y)}{x^2y^2z}, \frac{x^3yz^2}{(xz+1)(xyz+xz+y)}\right)$ 3470: $\left(x, \frac{y^2z}{yz+1}, \frac{yz+1}{y}\right)$ 3605: $\left(\frac{(xz+y)^2(xyz+xz+y)}{x^3yz^2}, \frac{(xz+y)^2(xyz+xz+y)}{x^3y^2z^2}, \frac{x^4yz^3}{(xz+y)^2(xyz+xz+y)}\right)$ 3823: $\left(\frac{(x+z)(xy+z)(xy+x+z)}{x^3yz}, \frac{(x+z)(xy+z)(xy+x+z)}{x^3y^2z}, \frac{x^4y^2}{(x+z)(xy+z)(xy+x+z)}\right)$ 4114: $\left(\frac{x^2yz}{xyz+xz+y}, \frac{x^2z}{xyz+xz+y}, \frac{xyz+xz+y}{xy}\right)$
3692	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{1}{x^2yz}$	3862: $\left(\frac{(z+1)(xy+z+1)}{xz}, \frac{x^2yz}{(z+1)(xy+z+1)}, z\right)$
3693	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	3723: $\left(x, y, \frac{xyz}{xy+y+1}\right)$
3699	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{5}{xy}+\frac{2}{xyz}+\frac{3}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	3297: $\left(x, \frac{x+yz+1}{y}, \frac{y^2z}{x+yz+1}\right)$ 4123: $\left(x, y, \frac{(xy+x+1)(xy+(x+1)^2)}{x^2y^2z}\right)$
3707	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3038: $\left(\frac{(y+z)(x+1)}{x}, x, \frac{y}{z}\right)$ 3955: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$ 4112: $\left(x, y, \frac{xy^2z}{(y+1)(xy+(y+1)^2)}\right)$
3713	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	3024: $\left(\frac{y(x+1)(xz+x+1)}{x^2z}, x, z\right)$
3714	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{2}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{2z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	2982: $\left(\frac{(x+y)^2(xy+x+y)}{x^2y^2z}, x, y\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3716	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{4}{xy}+\frac{3}{xyz}+\frac{2}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	3274: $\left(\frac{y(xz+1)}{xz},x,z\right)$
3717	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{2}{x^2z}+\frac{3}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3yz^2}$	3297: $\left(x,\frac{(yz+1)(x+1)}{xz},\frac{yz}{x}\right)$
3722	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2699: $\left(\frac{x(z+1)(y+1)}{yz},z,y\right)$ 2701: $\left(\frac{z(y+1)(xy+x+y)}{xy^2},y,x\right)$
3723	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3038: $\left(\frac{(x+1)(x+z+1)}{xy},x,z\right)$ 3693: $\left(x,y,\frac{z(xy+y+1)}{xy}\right)$ 3979: $\left(x,y,\frac{xyz}{xy+y+1}\right)$ 4130: $\left(x,y,\frac{(y+1)^2(xy+y+1)}{xy^2z}\right)$
3764	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{8}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3221: $\left(\frac{(xy+x+yz)(xy^2z+(x+yz)^2)}{x^2y^3z^2},y,\frac{yz}{x}\right)$
3768	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{4z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{5}{x^2y}+\frac{5}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2520: $\left(\frac{(y+z)(xz+y^2)(xy+xz+y^2)}{x^2y^2z^2},\frac{x^3z^3}{(y+z)(xz+y^2)(xy+xz+y^2)},\frac{y}{z}\right)$
3769	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{2yz^2}{x}+\frac{2yz}{x}+\frac{6z}{x}+\frac{4}{x}+\frac{6}{xy}+\frac{3}{xyz}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}+\frac{yz^2}{x^2}+\frac{4z}{x^2}+\frac{6}{x^2y}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	3281: $\left(x,\frac{(y+z)(xz+y+z)}{xy^2z},\frac{xyz^2}{(y+z)(xz+y+z)}\right)$
3770	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{3}{y}+\frac{4}{yz}+\frac{5}{y^2z}+\frac{3}{y^3z^2}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{5}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3180: $\left(\frac{y(xz+1)(xz^2+y+z)}{x^2z^3},\frac{(xz+1)(xz^2+y+z)}{x^2z^2},\frac{x^3z^3}{(xz+1)(xz^2+y+z)}\right)$
3812	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{2}{xy}+\frac{6}{xyz}+\frac{2}{xy^2z}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	3293: $\left(x,y,\frac{z(y+1)(x+y+1)}{xy}\right)$
3823	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{3z}{x}+\frac{5}{x}+\frac{4z}{xy}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{3z}{x^2}+\frac{2z^2}{x^2y}+\frac{7z}{x^2y}+\frac{3z}{x^2y^2}+\frac{3z^2}{x^3y}+\frac{3z^2}{x^3y^2}+\frac{z^3}{x^4y^2}$	3682: $\left(\frac{(yz+1)(xz+1)(xz+yz+1)}{x^2yz^2},\frac{x}{y},\frac{(yz+1)(xz+1)(xz+yz+1)}{x^2y^2z^3}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3829	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2658: $\left(\frac{(y+1)^2(x+z)}{xyz}, \frac{x}{z}, y\right)$
3831	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{7}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^2z^3}$	2989: $\left(\frac{(xy+y+z)^2}{xy^2z}, x, \frac{y}{z}\right)$
3834	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^3z^2}$	3274: $\left(\frac{xz+(x+1)^2}{xy}, x, z\right)$
3839	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	2980: $\left(\frac{z(y+1)^2(x+1)}{xy^2}, y, x\right)$
3859	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{7}{xy}+\frac{3}{xyz}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{xy^2z}$	3035: $\left(\frac{(x+1)(xyz+x+yz)}{x^2z}, x, \frac{x}{yz}\right)$
3862	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	3522: $\left(x, \frac{(z+1)(xz+(z+1)^2)}{xyz}, z\right)$ 3692: $\left(\frac{(z+1)(xy+z+1)}{xz}, \frac{x^2yz}{(z+1)(xy+z+1)}, z\right)$ 3958: $\left(\frac{(xyz+x+y)(x^2yz+(x+y)^2)}{x^3y^2z}, \frac{x^4y^2z^2}{(xyz+x+y)(x^2yz+(x+y)^2)}, \frac{x}{y}\right)$ 4178: $\left(\frac{(y+1)(xz+y+1)(xyz+(y+1)^2)}{x^2y^2z}, \frac{x^3y^2z^2}{(y+1)(xz+y+1)(xyz+(y+1)^2)}, y\right)$
3866	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{4}{y}+\frac{3}{yz}+\frac{5}{y^2z}+\frac{2}{y^3z^2}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{4}{xy}+\frac{5}{xyz}+\frac{6}{xy^2z}+\frac{2}{xy^2z^2}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^3}$	3470: $\left(\frac{xyz+yz+1}{xz}, x, \frac{yz}{x}\right)$
3912	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{3z}{x}+\frac{4}{x}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{9}{xy}+\frac{4}{xyz}+\frac{2z}{x^2}+\frac{3z^2}{x^2y}+\frac{9z}{x^2y}+\frac{6}{x^2y}+\frac{3z^2}{x^3y}+\frac{4z}{x^3y}+\frac{z^2}{x^4y}$	3235: $\left(x, \frac{z(x+y)(xy+x+y)}{x^2y}, y\right)$
3930	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{6y}{x}+\frac{3y}{xz}+\frac{6z}{x}+\frac{4}{x}+\frac{2z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3508: $\left(x, \frac{xyz}{(y+z)(xyz+(y+z)^2)}, \frac{xz^2}{(y+z)(xyz+(y+z)^2)}\right)$
3940	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{7}{xy}+\frac{5}{xyz}+\frac{8}{xy^2z}+\frac{2}{xy^2z^2}+\frac{3}{xy^3z^2}+\frac{z}{x^2}+\frac{4}{x^2y}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	3470: $\left(x, \frac{xyz+(yz+1)^2}{y^2z}, \frac{y^3z^2}{xyz+(yz+1)^2}\right)$
3942	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{5z}{y}+\frac{4}{y}+\frac{7z}{y^2}+\frac{4z}{y^3}+\frac{y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{8}{xy}+\frac{6}{xy^2}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}$	2500: $\left(\frac{x+yz(x+1)^2}{x^2z}, x, \frac{x^2yz^2}{x+yz(x+1)^2}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
3951	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{9}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	2480: $\left(x, \frac{(z+1)^3}{yz^2}, z\right)$ 3160: $\left(x, \frac{(z+1)^3(x+z+1)}{xyz^2}, z\right)$ 3290: $\left(x, \frac{(y+z)^2(xz+y+z)}{xy^2z^2}, \frac{y}{z}\right)$ 4068: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{x^2yz}{xyz+(z+1)^2}, z\right)$
3955	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{6}{xz}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{10}{x^2z}+\frac{10}{x^2yz}+\frac{5}{x^2y^2z}+\frac{1}{x^2y^3z}$	3707: $\left(x, y, \frac{xy+(y+1)^2}{xyz}\right)$
3958	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{2y}{x}+\frac{4}{x}+\frac{5}{xz}+\frac{8}{xyz}+\frac{4}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{7}{x^2z}+\frac{6}{x^2yz^2}+\frac{2y}{x^3z}+\frac{4}{x^3z^2}+\frac{y}{x^4z^2}$	3862: $\left(\frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz}, \frac{(xy+z+1)(xyz+(z+1)^2)}{x^2yz^2}, \frac{x^3y^2z}{(xy+z+1)(xyz+(z+1)^2)}\right)$
3959	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{7}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{3y^2}{x^2z}+\frac{8y}{x^2z}+\frac{7}{x^2z}+\frac{2}{x^2yz}+\frac{y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{3y}{x^3z^2}+\frac{1}{x^3z^2}$	3457: $\left(\frac{(z+1)^2(x+y)(xz+yz+y)}{x^2yz^2}, z, \frac{x^3z^3}{(z+1)^2(x+y)(xz+yz+y)}\right)$
3969	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{8}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3269: $\left(\frac{x(yz+z+1)}{yz}, y, \frac{1}{z}\right)$
3971	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{7}{xy}+\frac{8}{xyz}+\frac{3}{xyz^2}+\frac{z}{xy^2}+\frac{4}{xy^2}+\frac{6}{xy^2z}+\frac{4}{xy^2z^2}+\frac{1}{xy^2z^3}$	3534: $\left(\frac{(yz+z+1)(yz+(z+1)^2)}{xyz^2}, y, z\right)$
3979	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^2y^3z}$	3723: $\left(x, y, \frac{z(xy+y+1)}{xy}\right)$
3987	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3025: $\left(\frac{y(x+1)(xz+z+1)}{x^2z}, x, z\right)$
3988	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{5}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{5}{xz}+\frac{2}{xy}+\frac{7}{xyz}+\frac{3}{xy^2z}+\frac{y}{x^2z}+\frac{3}{x^2z}+\frac{3}{x^2yz}+\frac{1}{x^2y^2z}$	3307: $\left(x, y, \frac{(x+1)(x+y+1)}{xyz}\right)$
4053	$x+\frac{x}{z}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{9}{xyz}+\frac{2}{xy^2}+\frac{9}{xy^2z}+\frac{3}{xy^3z}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{6}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^2y^4z}$	3517: $\left(x, y, \frac{z(y+1)(xy+y+1)}{xy^2}\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
4068	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{9}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{5z}{x^2y}+\frac{10}{x^2y}+\frac{10}{x^2yz}+\frac{5}{x^2yz^2}+\frac{1}{x^2yz^3}$	3522: $\left(x, \frac{(z+1)^2(xz+(z+1)^2)}{xyz^2}, z\right)$ 3951: $\left(\frac{xyz+(z+1)^2}{xz}, \frac{x^2yz}{xyz+(z+1)^2}, z\right)$ 4265: $\left(\frac{(xyz+(y+1)^2)(xy^2z+(y+1)^3)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+(y+1)^2)(xy^2z+(y+1)^3)}, y\right)$
4073	$x+y+z+\frac{1}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{7}{xy}+\frac{1}{xyz}+\frac{3z^2}{xy^2}+\frac{8z}{xy^2}+\frac{3}{xy^2}+\frac{3z^2}{xy^3}+\frac{3z}{xy^3}+\frac{z^2}{xy^4}$	3297: $\left(\frac{(yz+1)(x+yz+1)}{y^2z}, x, \frac{x}{yz}\right)$
4085	$x+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{3yz}{x}+\frac{6z}{x}+\frac{6}{x}+\frac{12}{xy}+\frac{6}{xy^2z}+\frac{3yz^2}{x^2}+\frac{6yz}{x^2}+\frac{18z}{x^2}+\frac{15}{x^2y}+\frac{2y^2z^2}{x^3}+\frac{12yz^2}{x^3}+\frac{20z}{x^3}+\frac{3y^2z^3}{x^4}+\frac{15yz^2}{x^4}+\frac{6y^2z^3}{x^5}+\frac{y^3z^4}{x^6}$	3605: $\left(x, \frac{(x^2yz+(xz+y)^2)^2}{x^4y^2z^3}, \frac{x^4y^3z^2}{(x^2yz+(xz+y)^2)^2}\right)$
4096	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{4y}{x^2z^2}+\frac{10}{x^2z}+\frac{10}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{6}{x^3z^2}+\frac{11}{x^3yz}+\frac{6}{x^3y^2}+\frac{4}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3099: $\left(\frac{xz+(xy+1)^2}{xy^2}, \frac{x^2y^2z}{xz+(xy+1)^2}, \frac{x^2y^3}{xz+(xy+1)^2}\right)$
4110	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{5}{x}+\frac{4}{xz}+\frac{3z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2y^2}{x^2z^3}+\frac{7y}{x^2z^2}+\frac{10}{x^2z}+\frac{7}{x^2y}+\frac{2z}{x^2y^2}+\frac{y^2}{x^3z^4}+\frac{4y}{x^3z^3}+\frac{6}{x^3z^2}+\frac{4}{x^3yz}+\frac{1}{x^3y^2}$	3180: $\left(\frac{xy^2z+(y+z)^2}{y^2z}, \frac{xy^3z}{xy^2z+(y+z)^2}, \frac{xy^2z^2}{xy^2z+(y+z)^2}\right)$
4112	$x+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{8}{xz}+\frac{6}{xy}+\frac{12}{xyz}+\frac{2}{xy^2}+\frac{8}{xy^2z}+\frac{2}{xy^3z}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{15}{x^2z}+\frac{20}{x^2yz}+\frac{15}{x^2y^2z}+\frac{6}{x^2y^3z}+\frac{1}{x^2y^4z}$	3707: $\left(x, y, \frac{z(y+1)(xy+(y+1)^2)}{xy^2}\right)$
4114	$x+y+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{7}{x}+\frac{4}{xz}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{2y}{x^2z^2}+\frac{12}{x^2z}+\frac{4}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{10y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{4y}{x^4z^3}+\frac{y^2}{x^5z^4}$	3682: $\left(\frac{xz+yz+1}{z}, \frac{x}{y}, \frac{xz^2}{xz+yz+1}\right)$
4123	$x+\frac{x}{y}+\frac{x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{5}{y^2z}+\frac{y}{xz}+\frac{3}{x}+\frac{5}{xz}+\frac{5}{xy}+\frac{12}{xyz}+\frac{10}{xy^2z}+\frac{3}{x^2z}+\frac{2}{x^2y}+\frac{10}{x^2yz}+\frac{10}{x^2y^2z}+\frac{3}{x^3yz}+\frac{5}{x^3y^2z}+\frac{1}{x^4y^2z}$	3699: $\left(x, y, \frac{(xy+x+1)(xy+(x+1)^2)}{x^2y^2z}\right)$
4130	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{8}{xz}+\frac{5}{xy}+\frac{12}{xyz}+\frac{2}{xy^2}+\frac{8}{xy^2z}+\frac{2}{xy^3z}+\frac{y}{x^2z}+\frac{5}{x^2z}+\frac{10}{x^2yz}+\frac{10}{x^2y^2z}+\frac{5}{x^2y^3z}+\frac{1}{x^2y^4z}$	3723: $\left(x, y, \frac{(y+1)^2(xy+y+1)}{xy^2z}\right)$
4142	$x+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{6}{xy}+\frac{10}{xyz}+\frac{4}{xyz^2}+\frac{3}{xy^2}+\frac{9}{xy^2z}+\frac{6}{xy^2z^2}+\frac{3}{xy^3z}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^2}$	3274: $\left(\frac{y(xz+1)(xz+x+1)}{x^2z^2}, x, z\right)$

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Table 124 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 124a
4174	$x+\frac{x}{y}+\frac{x}{y^2z}+y+z+\frac{5}{y}+\frac{3}{yz}+\frac{7}{y^2z}+\frac{3}{y^3z^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{9}{xy}+\frac{5}{xyz}+\frac{15}{xy^2z}+\frac{2}{xy^2z^2}+\frac{11}{xy^3z^2}+\frac{3}{xy^4z^3}+\frac{z}{x^2}+\frac{5}{x^2y}+\frac{10}{x^2y^2z}+\frac{10}{x^2y^3z^2}+\frac{5}{x^2y^4z^3}+\frac{1}{x^2y^5z^4}$	3470: $\left(x, \frac{(xyz+yz+1)^2}{x^2yz^2}, \frac{x^2y^2z^3}{(xyz+yz+1)^2}\right)$
4178	$x+y+z+\frac{z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{7}{x}+\frac{5}{xz}+\frac{5}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{3y^2}{x^2z}+\frac{11y}{x^2z}+\frac{15}{x^2z}+\frac{9}{x^2yz}+\frac{2}{x^2y^2z}+\frac{y^3}{x^3z^2}+\frac{5y^2}{x^3z^2}+\frac{10y}{x^3z^2}+\frac{10}{x^3z^2}+\frac{5}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3862: $\left(\frac{(z+1)(xy+z+1)(xyz+(z+1)^2)}{x^2yz^2}, z, \frac{x^3y^2z^2}{(z+1)(xy+z+1)(xyz+(z+1)^2)}\right)$
4242	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+4z+\frac{9z^2}{y}+\frac{6z}{y}+\frac{6z^3}{y^2}+\frac{5}{x}+\frac{2}{xz}+\frac{17z}{xy}+\frac{6}{xy}+\frac{15z^2}{xy^2}+\frac{3}{x^2z}+\frac{17}{x^2y}+\frac{2}{x^2yz}+\frac{20z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{9}{x^3yz}+\frac{15}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{6}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3596: $\left(\frac{(xy+yz+1)(xy+(yz+1)^2)}{x^2y}, \frac{x^3y^2}{(xy+yz+1)(xy+(yz+1)^2)}, \frac{x^2y^2z}{(xy+yz+1)(xy+(yz+1)^2)}\right)$
4265	$x+y+z+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{5y}{xz}+\frac{7}{x}+\frac{9}{xz}+\frac{5}{xy}+\frac{7}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{3y^2}{x^2z}+\frac{14y}{x^2z}+\frac{26}{x^2z}+\frac{24}{x^2yz}+\frac{11}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{y^3}{x^3z^2}+\frac{7y^2}{x^3z^2}+\frac{21y}{x^3z^2}+\frac{35}{x^3z^2}+\frac{35}{x^3yz^2}+\frac{21}{x^3y^2z^2}+\frac{7}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	4068: $\left(\frac{(xyz+(z+1)^2)(xyz^2+(z+1)^3)}{x^2yz^3}, z, \frac{x^3y^2z^3}{(xyz+(z+1)^2)(xyz^2+(z+1)^3)}\right)$

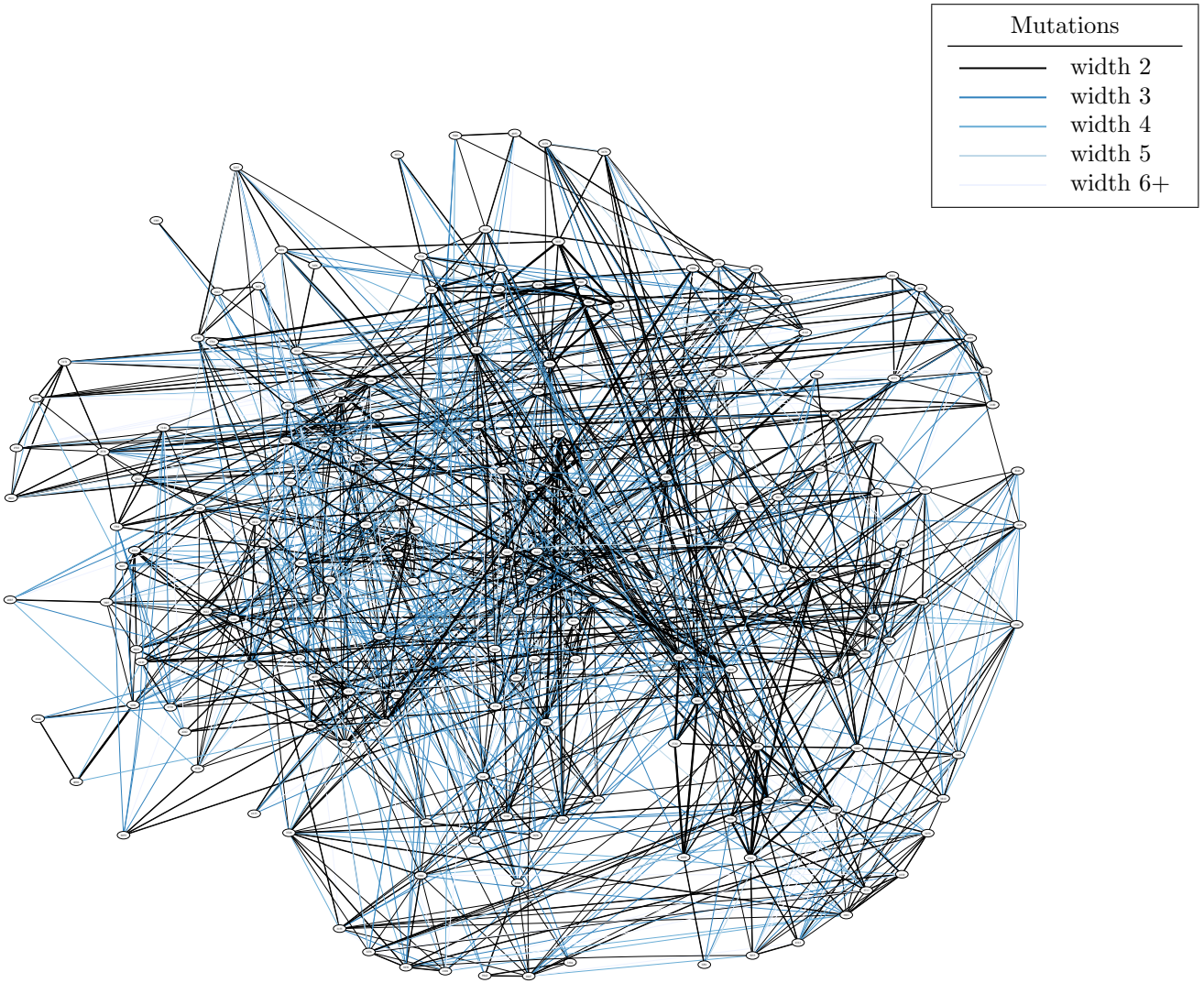

Figure 124b. All mutations between Minkowski polynomials in bucket 124

Bucket 125

Bucket 125 consists of a single Laurent polynomial:

$$f = xy^2 + \frac{xy^2}{z} + 2xy + x + 4y + z + \frac{6}{x} + \frac{2}{xy} + \frac{4}{x^2y} + \frac{1}{x^3y^2}$$

The Newton polytope of f has reflexive ID 457.

Bucket 126

Bucket 126 consists of a single Laurent polynomial:

$$f = xy^2z^2 + 2xyz + x + 4yz + y + z + \frac{6}{x} + \frac{2}{xyz} + \frac{4}{x^2yz} + \frac{1}{x^3y^2z^2}$$

The Newton polytope of f has reflexive ID 453.

Bucket 127

(A) A spanning tree consisting of width-2 mutations

(B) All mutations are of width 2

Figure 127. Mutations between Minkowski polynomials in bucket 127

Table 127. Laurent polynomials and selected mutations for bucket 127.

Node	Laurent polynomial	Mutations from Figure 127a
505	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{3}{y} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	816: $\left(\frac{x^3y^3z^2+(xyz+1)^3}{x^2yz}, \frac{x^3y^3z^2+(xyz+1)^3}{x^3y^2z^2}, \frac{x^4y^3z^2}{x^3y^3z^2+(xyz+1)^3}\right)$
816	$xy^2z^2 + xy^2z + 2xyz + x + 4yz + y + z + \frac{6}{x} + \frac{2}{xyz} + \frac{4}{x^2yz} + \frac{1}{x^3y^2z^2}$	505: $\left(\frac{x^2y^2z+(x+y)^3}{x^2y^2}, \frac{x^2y^3z}{x^2y^2z+(x+y)^3}, \frac{x}{y^2z}\right)$

Bucket 128

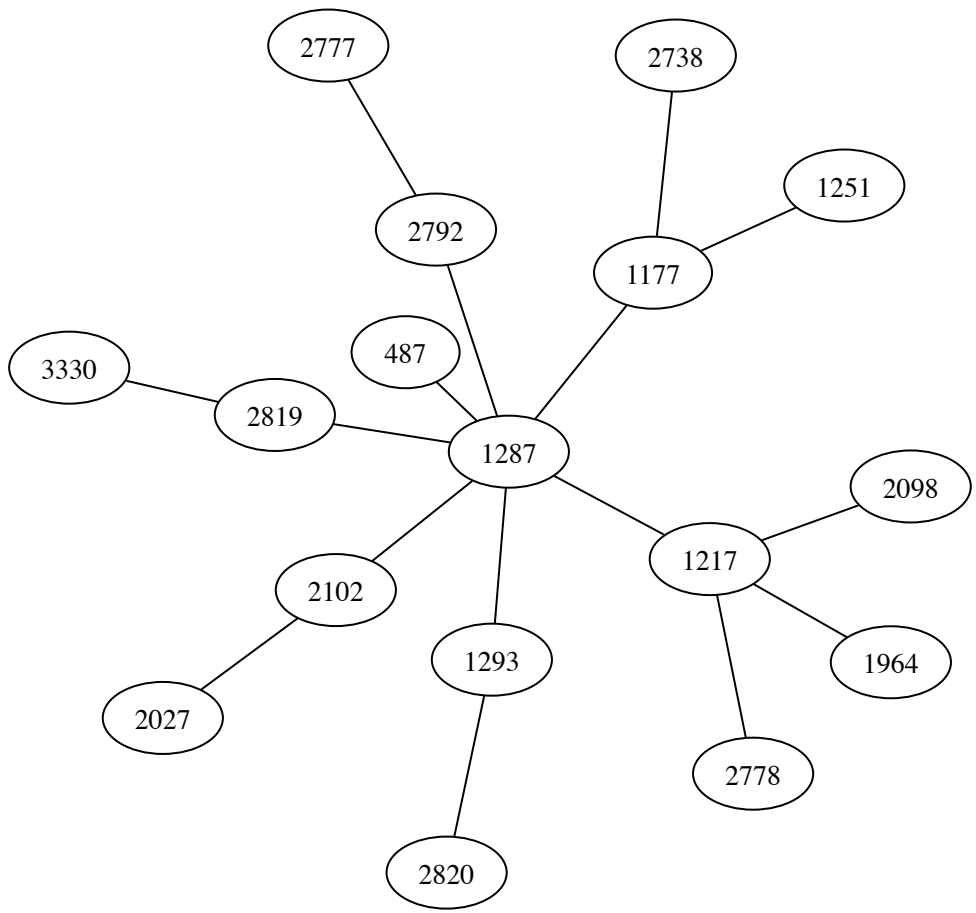

Figure 128a. Selected width-2 mutations between Minkowski polynomials in bucket 128

Table 128. Laurent polynomials and selected mutations for bucket 128.

Node	Laurent polynomial	Mutations from Figure 128a
487	$\frac{xy}{z}+x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	1287: $\left(\frac{y+1}{xy^2},\frac{y+1}{xy},z(y+1)\right)$
1177	$\frac{x^2z^2}{y}+2xz+x+\frac{3xz}{y}+y+z+\frac{3}{y}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{3}{x^2z}+\frac{1}{x^3z^2}$	1251: $\left(x,\frac{(y+z)^2}{y^2z},\frac{z}{xy}\right)$ 1287: $\left(\frac{(y+1)(xy^2z+1)}{x^2y^3z},\frac{(y+1)(xy^2z+1)}{xy^2},\frac{x^2y^2z}{(y+1)(xy^2z+1)}\right)$ 2738: $\left(\frac{x^3yz}{x^2yz+(xz+1)^3},\frac{x^2yz+(xz+1)^3}{x^2z},\frac{x^2yz+(xz+1)^3}{x^2y}\right)$
1217	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	1287: $\left(x,y,\frac{y+1}{x^2y^3z}\right)$ 1964: $\left(\frac{x^4y^3z}{1+xyz(xy+1)^2},\frac{1+xyz(xy+1)^2}{x^3y^2z},z\right)$ 2098: $\left(\frac{y^2}{x+y},\frac{x}{y},\frac{z(x+y)}{x}\right)$ 2778: $\left(\frac{(xyz+z+1)(xyz^2+z+1)}{x^2yz^3},z,\frac{x^3y^2z^3}{(xyz+z+1)(xyz^2+z+1)}\right)$
1251	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{z}{xy}$	1177: $\left(y,\frac{(xz+1)^2}{x^2z},\frac{(xz+1)^2}{x^3z^2}\right)$
1287	$xy^2+2xy+x+yz+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2y^2z}+\frac{1}{x^2y^3z}$	487: $\left(\frac{x+y}{y^2},\frac{y}{x},\frac{xz}{x+y}\right)$ 1177: $\left(\frac{(xz+1)(x^2z+y)}{xy},\frac{1}{xz},\frac{xy^2z}{(xz+1)(x^2z+y)}\right)$ 1217: $\left(x,y,\frac{y+1}{x^2y^3z}\right)$ 1293: $\left(\frac{y+z}{xy},\frac{x}{z},\frac{y^2z}{x(y+z)}\right)$ 2102: $\left(\frac{(yz+1)(x+y^2z)}{y^3z},\frac{y}{x},\frac{x^2}{(yz+1)(x+y^2z)}\right)$ 2792: $\left(\frac{x}{(xyz+1)^2},xyz,\frac{(xyz+1)^2}{x^2y}\right)$ 2819: $\left(\frac{1+xyz(xy+1)^2}{x^2yz},\frac{x^3y^2z}{1+xyz(xy+1)^2},\frac{1}{x^2y^2z}\right)$
1293	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}$	1287: $\left(\frac{xy^2z+1}{x^2y^2z},\frac{xy^2z+1}{xy},\frac{xy^2z+1}{x^2y^3z}\right)$ 2820: $\left(\frac{z+y(z+1)^2}{xz},z,y\right)$
1964	$xy^2+2xy+x+4y+z+\frac{6}{x}+\frac{2}{xy}+\frac{4}{x^2y}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{2}{x^4y^3z}+\frac{1}{x^5y^4z^2}$	1217: $\left(\frac{1+xyz(xy+1)^2}{x^2y^3z},\frac{x^3y^4z}{1+xyz(xy+1)^2},z\right)$
2027	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{4}{x^2z}+\frac{y}{x^3z}$	2102: $\left(x,y,\frac{z(x+y)^2}{x^2}\right)$

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Table 128 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 128a
2098	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	1217: $\left(x(y+1), xy(y+1), \frac{z}{y+1}\right)$
2102	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{2}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	1287: $\left(\frac{(xyz+1)(xy^2z+1)}{x^2y^3z}, \frac{(xyz+1)(xy^2z+1)}{x^2y^2z}, \frac{x}{(xyz+1)(xy^2z+1)}\right)$ 2027: $\left(x, y, \frac{x^2z}{(x+y)^2}\right)$
2738	$xz^2+2xz+x+\frac{xz^3}{y}+y+4z+\frac{6z^2}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{4}{x^2z}+\frac{20}{x^2y}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	1177: $\left(\frac{x^2yz+(xz+1)^3}{xyz}, \frac{x^2y^2z}{x^2yz+(xz+1)^3}, \frac{x^2yz^2}{x^2yz+(xz+1)^3}\right)$
2777	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{5y}{x^2z^2}+\frac{10}{x^2z}+\frac{10}{x^2y}+\frac{5z}{x^2y^2}+\frac{z^2}{x^2y^3}$	2792: $\left(x, \frac{z(xyz+1)^2}{x}, \frac{(xyz+1)^2}{x^2y}\right)$
2778	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	1217: $\left(\frac{(xyz+y+1)(xy^2z+y+1)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+y+1)(xy^2z+y+1)}, y\right)$
2792	$xy^2z^3+xy^2z^2+2xyz+x+3yz^2+4yz+y+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{4}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^2z^3}$	1287: $\left(x(y+1)^2, \frac{1}{x^2z(y+1)^2}, xyz\right)$ 2777: $\left(x, \frac{(y+z)^2}{x^2z^3}, \frac{xyz^2}{(y+z)^2}\right)$
2819	$xy^2+2xy+x+yz+4y+z+\frac{2z}{x}+\frac{6}{x}+\frac{2}{xy}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^3z}$	1287: $\left(\frac{xyz+(xy+1)^2}{x}, \frac{x^2y}{xyz+(xy+1)^2}, \frac{1}{x^2y^2z}\right)$ 3330: $\left(x, y, \frac{1}{yz(x^2y+(xy+1)^2)}\right)$
2820	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1293: $\left(\frac{y+z(y+1)^2}{xy}, z, y\right)$
3330	$xy^2+2xy+x+y^2z+2yz+4y+z+\frac{4yz}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xy}+\frac{6z}{x^2}+\frac{2z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2y^2z}+\frac{4z}{x^3y}+\frac{2}{x^3y^2}+\frac{z}{x^4y^2}$	2819: $\left(x, y, \frac{1}{yz(x^2y+(xy+1)^2)}\right)$

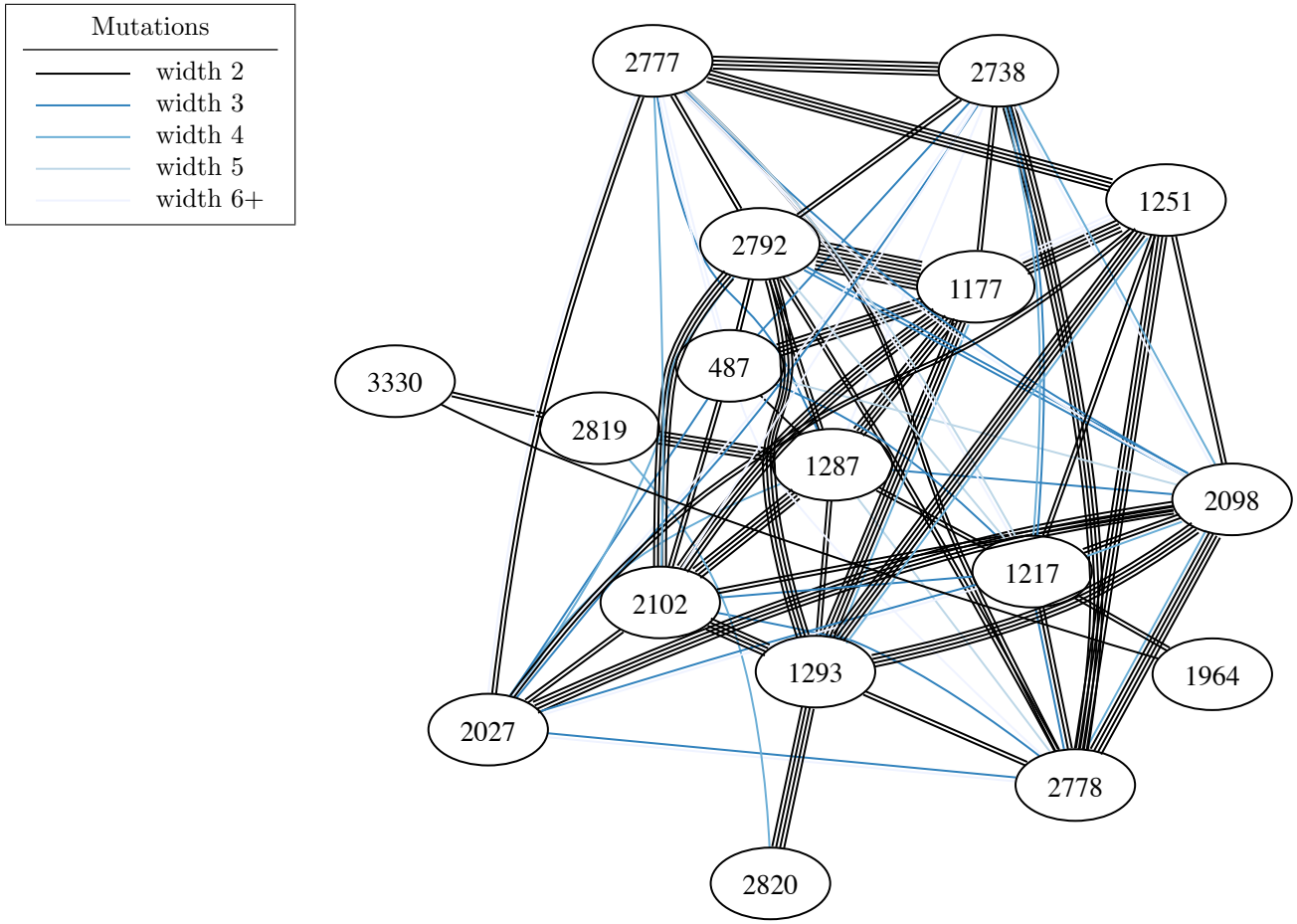


FIGURE 128B. All mutations between Minkowski polynomials in bucket 128

Bucket 129

Bucket 129 consists of a single Laurent polynomial:

$$f = xz^2 + 2xz + x + y + 4z + \frac{6}{x} + \frac{2}{xz} + \frac{1}{xy} + \frac{4}{x^2z} + \frac{1}{x^3z^2}$$

The Newton polytope of f has reflexive ID 452.

Bucket 130

(A) A spanning tree consisting of width-2 mutations

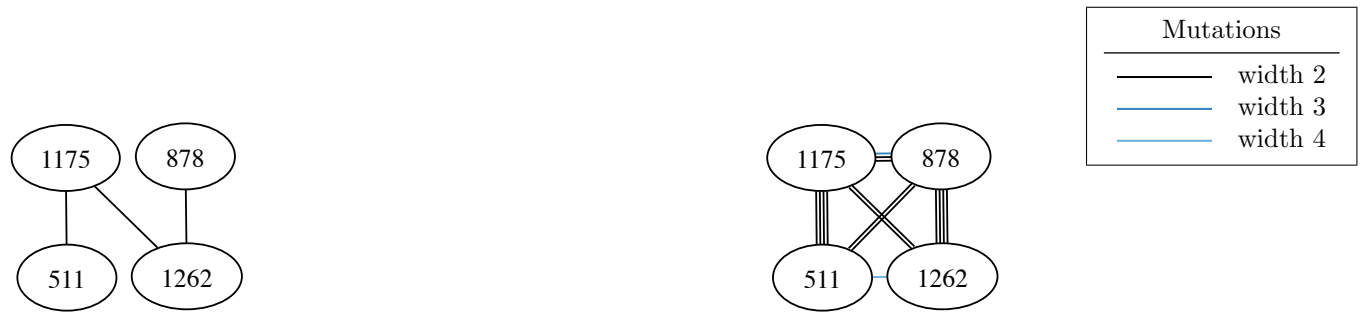
(B) All mutations are of width 2

Figure 130. Mutations between Minkowski polynomials in bucket 130

Table 130. Laurent polynomials and selected mutations for bucket 130.

Node	Laurent polynomial	Mutations from Figure 130a
507	$x + \frac{2x}{y} + \frac{x}{y^2} + y + z + \frac{3}{y} + \frac{1}{yz} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	804: $\left(\frac{xz}{y+z}, \frac{xy}{y+z}, y+z\right)$
804	$x + y + \frac{2y}{z} + z + \frac{2z}{y} + \frac{y^2}{xz^2} + \frac{4y}{xz} + \frac{6}{x} + \frac{4z}{xy} + \frac{1}{xy} + \frac{z^2}{xy^2}$	507: $\left(x+y, \frac{yz}{x+y}, \frac{xz}{x+y}\right)$

Bucket 131



(A) A spanning tree consisting of width-2 mutations

(B) All mutations

Figure 131. Mutations between Minkowski polynomials in bucket 131

Table 131. Laurent polynomials and selected mutations for bucket 131.

Node	Laurent polynomial	Mutations from Figure 131a
511	$xy^2 + 2xy + x + \frac{x}{z} + 2y + z + \frac{2}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{1}{xy^2}$	1175: $\left(\frac{x^3yz^2}{x^2z^2+y(xz+1)^2}, \frac{x^2z^2+y(xz+1)^2}{x^2yz}, \frac{x^3z^2}{x^2z^2+y(xz+1)^2}\right)$
878	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{3}{y} + \frac{1}{yz} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	1262: $\left(\frac{x^2yz}{xyz+1}, \frac{x}{xyz+1}, \frac{xyz+1}{xy}\right)$
1175	$xz^2 + 2xz + x + \frac{xz^2}{y} + y + 4z + \frac{2z}{y} + \frac{6}{x} + \frac{2}{xz} + \frac{1}{xy} + \frac{4}{x^2z} + \frac{1}{x^3z^2}$	511: $\left(\frac{xy^2z+(xy+1)^2}{xy^2}, \frac{x}{z}, \frac{x^2y^3}{xy^2z+(xy+1)^2}\right)$ 1262: $\left(x, \frac{xyz+1}{xy}, yz\right)$
1262	$xy^2z^2 + xy^2z + 2xyz + x + 4yz + y + z + \frac{6}{x} + \frac{1}{xy} + \frac{2}{xyz} + \frac{4}{x^2yz} + \frac{1}{x^3y^2z^2}$	878: $\left(x+y, \frac{1}{yz}, \frac{xz}{x+y}\right)$ 1175: $\left(x, \frac{y}{xz+1}, \frac{z(xz+1)}{y}\right)$

Bucket 132

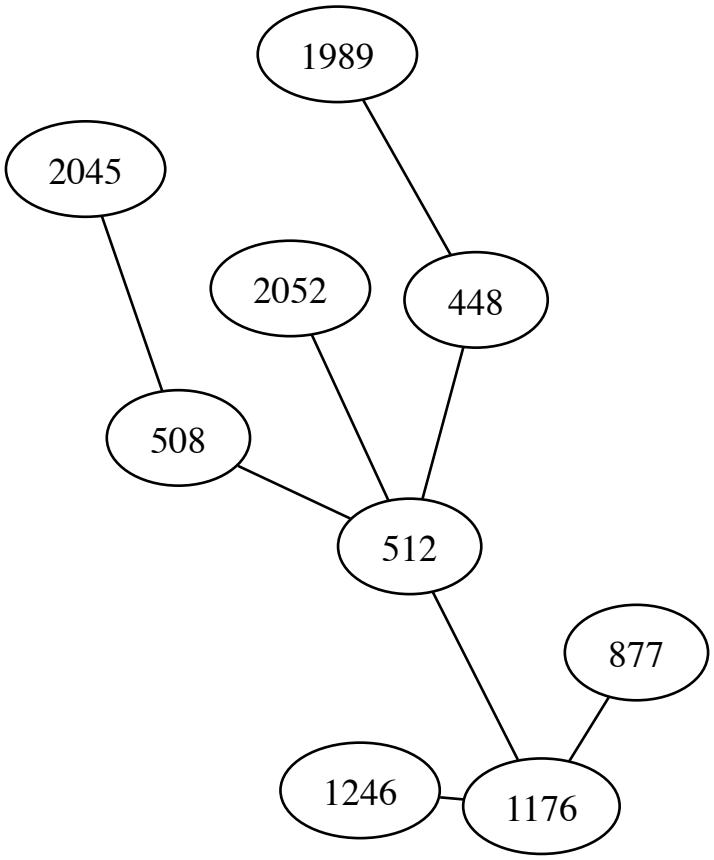


Figure 132a. Selected width-2 mutations between Minkowski polynomials in bucket 132

Table 132. Laurent polynomials and selected mutations for bucket 132.

Node	Laurent polynomial	Mutations from Figure 132a
448	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	$512\colon \left(\frac{(xy+1)^2}{xy^2}, \frac{xy}{z}, z\right)$ $1989\colon \left(\frac{xy}{y+z}, \frac{xz}{y+z}, y+z\right)$
508	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	$512\colon \left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, z\right)$ $2045\colon \left(\frac{x^2yz}{xyz+xz^2+y}, \frac{x^2z^2}{xyz+xz^2+y}, \frac{xyz+xz^2+y}{xz}\right)$
512	$xy^2+2xy+\frac{xy}{z}+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}$	$448\colon \left(\frac{xy^2z^2}{(yz+1)^2}, \frac{(yz+1)^2}{xyz}, z\right)$ $508\colon \left(\frac{x^2}{x+y}, \frac{x+y}{xy}, z\right)$ $1176\colon \left(\frac{x}{xz+(xyz+1)^2}, xyz, y\right)$ $2052\colon \left(\frac{x^3y^2}{x^3y^2z+(xy+1)^2}, \frac{x^3y^2z+(xy+1)^2}{x^2y}, \frac{x^4y^2z}{x^3y^2z+(xy+1)^2}\right)$
877	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	$1176\colon \left(\frac{(xyz+1)(xz+(xyz+1)^2)}{x^3y^2z^2}, \frac{(xyz+1)(xz+(xyz+1)^2)}{x^2yz}, y\right)$
1176	$xy^2z^2+2xyz+x+4yz+y+z+\frac{6}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	$512\colon \left(\frac{x(y+z(y+1)^2)}{z}, z, \frac{y}{x(y+z(y+1)^2)}\right)$ $877\colon \left(\frac{(x+y)(xy+z(x+y)^2)}{x^2y^2z}, z, \frac{xy^3}{(x+y)(xy+z(x+y)^2)}\right)$ $1246\colon \left(x, y+z, \frac{z}{xy(y+z)}\right)$
1246	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{4z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	$1176\colon \left(x, \frac{y}{xyz+1}, \frac{xy^2z}{xyz+1}\right)$
1989	$xz^2+2xz+x+\frac{xz^3}{y}+y+5z+\frac{4z^2}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{6z}{xy}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^3z^2}+\frac{1}{x^3yz}$	$448\colon \left(x+y, \frac{xz}{x+y}, \frac{yz}{x+y}\right)$
2045	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{3y}{x^2z^2}+\frac{3}{x^2z}+\frac{1}{x^2y}$	$508\colon \left(\frac{xyz+x+y^2z}{yz}, \frac{xyz^2}{xyz+x+y^2z}, \frac{y^2z^2}{xyz+x+y^2z}\right)$
2052	$x^2y^2z+xy^2+2xyz+2xy+x+5y+z+\frac{y}{xz}+\frac{6}{x}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^3yz}+\frac{1}{x^3y^2}$	$512\colon \left(\frac{xy^2z+(xy+1)^2}{xy^2}, \frac{x^2y^3}{xy^2z+(xy+1)^2}, \frac{y^2z}{xy^2z+(xy+1)^2}\right)$

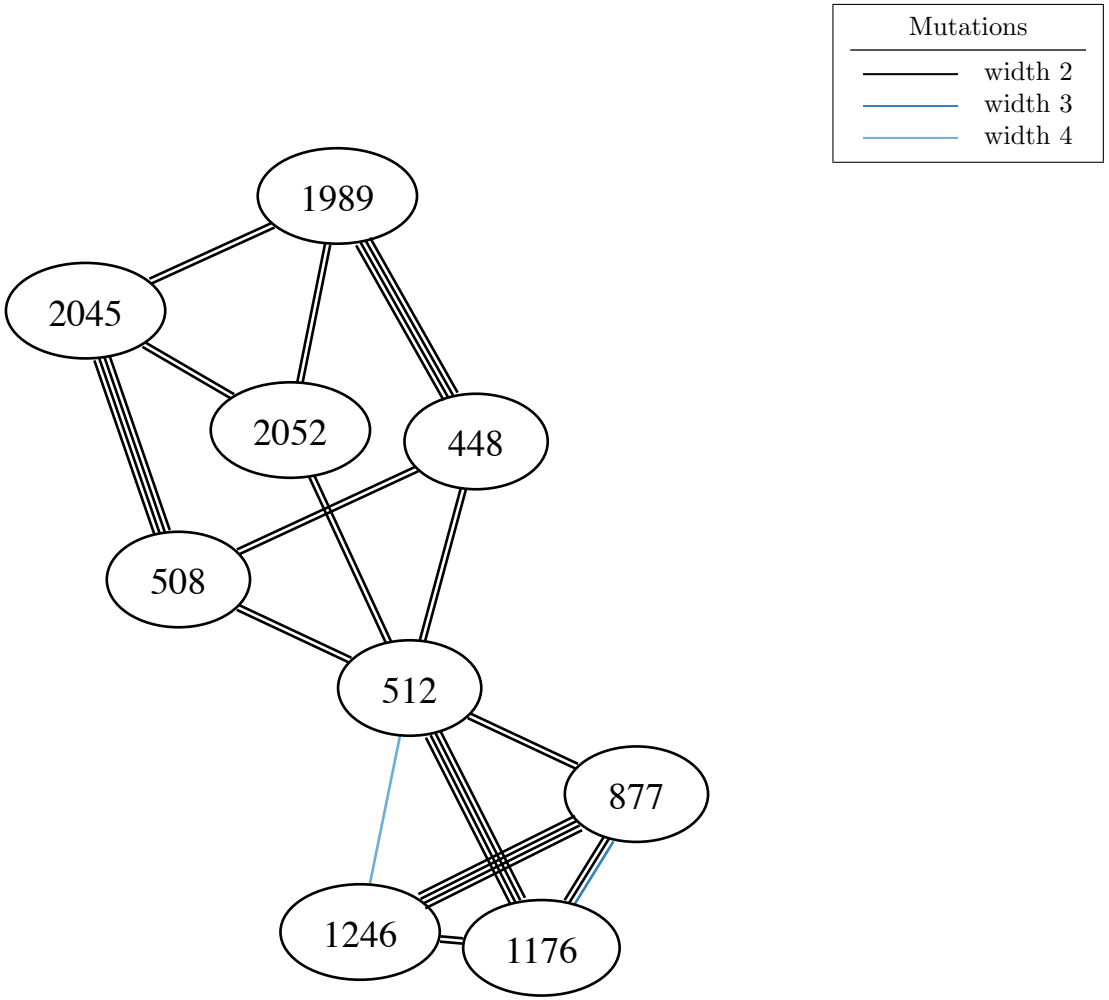


FIGURE 132B. All mutations between Minkowski polynomials in bucket 132

Bucket 133

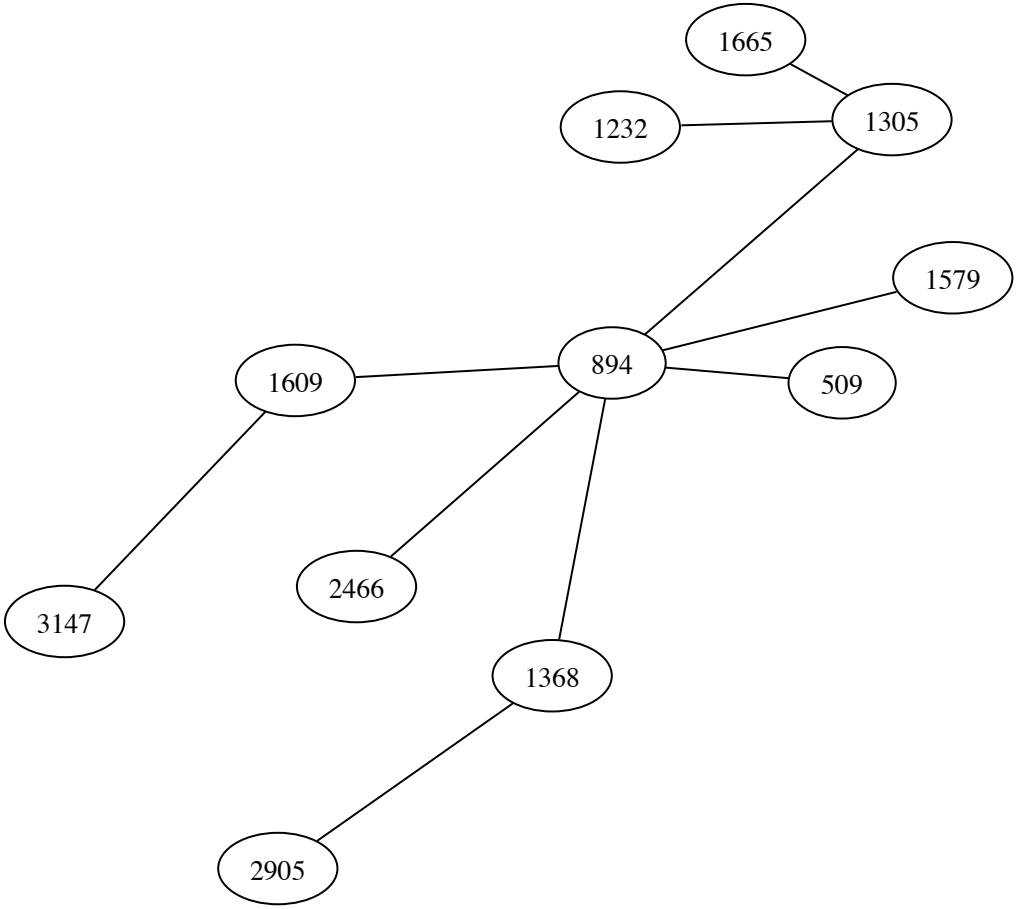


Figure 133a. Selected width-2 mutations between Minkowski polynomials in bucket 133

Table 133. Laurent polynomials and selected mutations for bucket 133.

Node	Laurent polynomial	Mutations from Figure 133a
509	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	894: $\left(x(y+1), xy(y+1), \frac{x(y+1)}{z}\right)$
894	$xy^2+2xy+\frac{xy}{z}+x+\frac{x}{z}+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}$	509: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{x}{z}\right)$ 1305: $\left(\frac{x+y}{y^2}, \frac{y}{x}, \frac{x+y}{y^2z}\right)$ 1368: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, \frac{x}{yz}\right)$ 1579: $\left(\frac{(xyz+1)^2}{x^3y^2z^2}, xyz, y\right)$ 1609: $\left(\frac{(yz+1)^2}{x}, \frac{xyz}{(yz+1)^2}, z\right)$ 2466: $\left(\frac{xyz+(xz+1)^2}{x}, \frac{x^2z}{xyz+(xz+1)^2}, \frac{xyz+(xz+1)^2}{xy}\right)$
1232	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1305: $\left(x, y, \frac{x+y}{y^2z}\right)$
1305	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	894: $\left(\frac{y+1}{xy^2}, \frac{y+1}{xy}, \frac{z}{y+1}\right)$ 1232: $\left(x, y, \frac{x+y}{y^2z}\right)$ 1665: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, \frac{y+z}{xz^2}\right)$
1368	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y}{x^2}$	894: $\left(y(xy+1), \frac{xy+1}{x}, \frac{xy}{z}\right)$ 2905: $\left(\frac{z^2+(y+z)^3}{xy^2z}, \frac{z^2+(y+z)^3}{xyz^2}, \frac{z^2+(y+z)^3}{xyz}\right)$
1579	$xy^2z^2+2xyz+x+4yz+y+z+\frac{6}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{4}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}$	894: $\left(\frac{(y+1)^2}{xy^2}, z, \frac{xy^3}{z(y+1)^2}\right)$
1609	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	894: $\left(\frac{(xy+1)^2}{x}, \frac{xy}{z}, z\right)$ 3147: $\left(\frac{x^2z^2+y(xz+1)^4}{x^3yz^2}, \frac{x^2z^2+y(xz+1)^4}{x^2z}, \frac{x^3z^2}{x^2z^2+y(xz+1)^4}\right)$
1665	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{6}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	1305: $\left(x+y, \frac{x}{y^2z}, \frac{1}{yz}\right)$
2466	$xz^2+2xz+x+\frac{xz^2}{y}+yz+y+5z+\frac{2z}{y}+\frac{2y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^3z^2}$	894: $\left(\frac{x^2y+z(xy+1)^2}{xz}, \frac{x}{z}, \frac{x^2yz}{x^2y+z(xy+1)^2}\right)$
2905	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	1368: $\left(\frac{x^3y+z(x+y)^3}{x^2y^2z}, \frac{z}{x}, \frac{z}{y}\right)$

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Table 133 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 133a
3147	$x^2yz^3+x^2yz^2+4xyz^2+2xyz+xz^2+2xz+x+6yz+y+5z+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{1}{x^3z^2}$	1609: $\left(\frac{xy^2z^3+(yz+1)^4}{xy^2z^2}, \frac{1}{xz}, \frac{xy^3z^3}{xy^2z^3+(yz+1)^4}\right)$

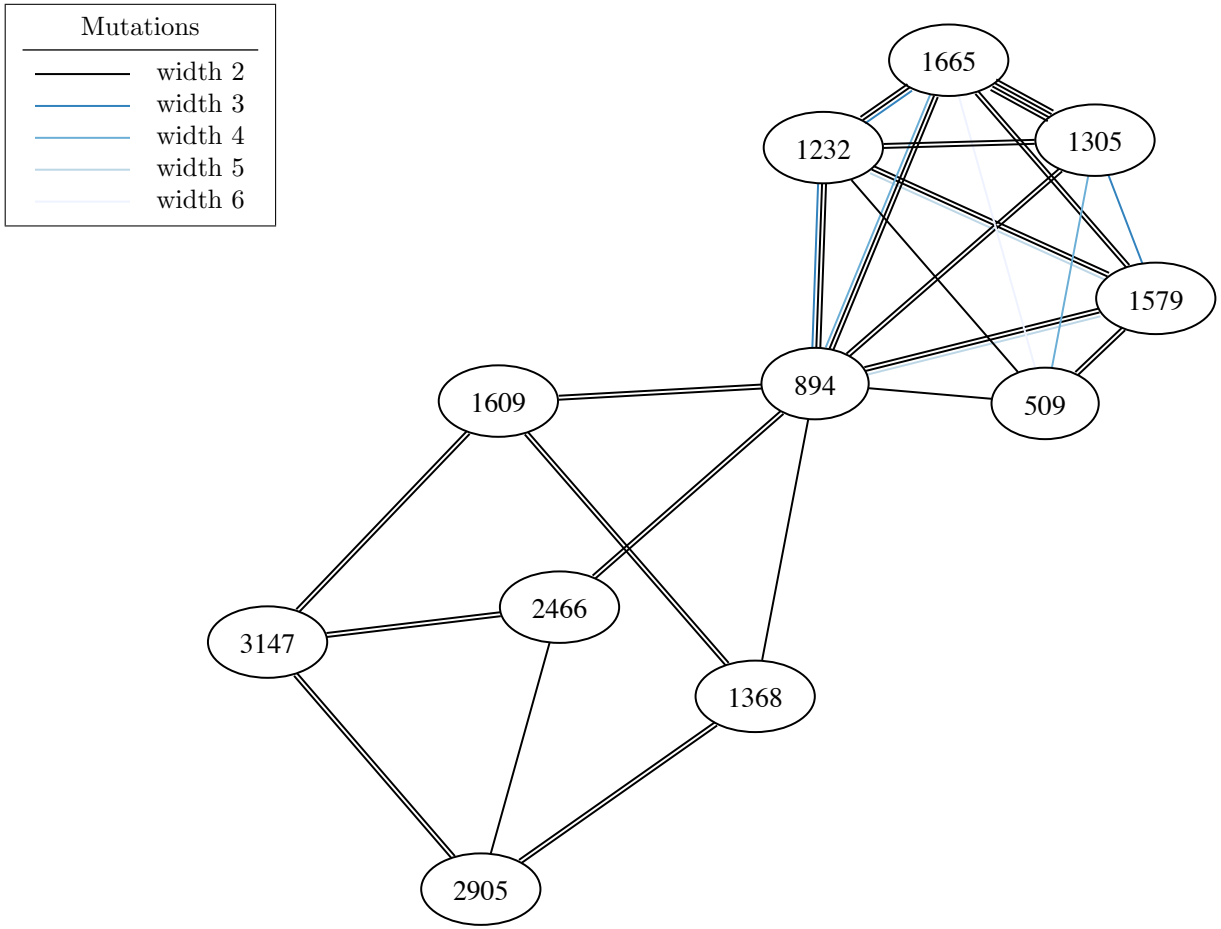

FIGURE 133B. All mutations between Minkowski polynomials in bucket 133

Bucket 134

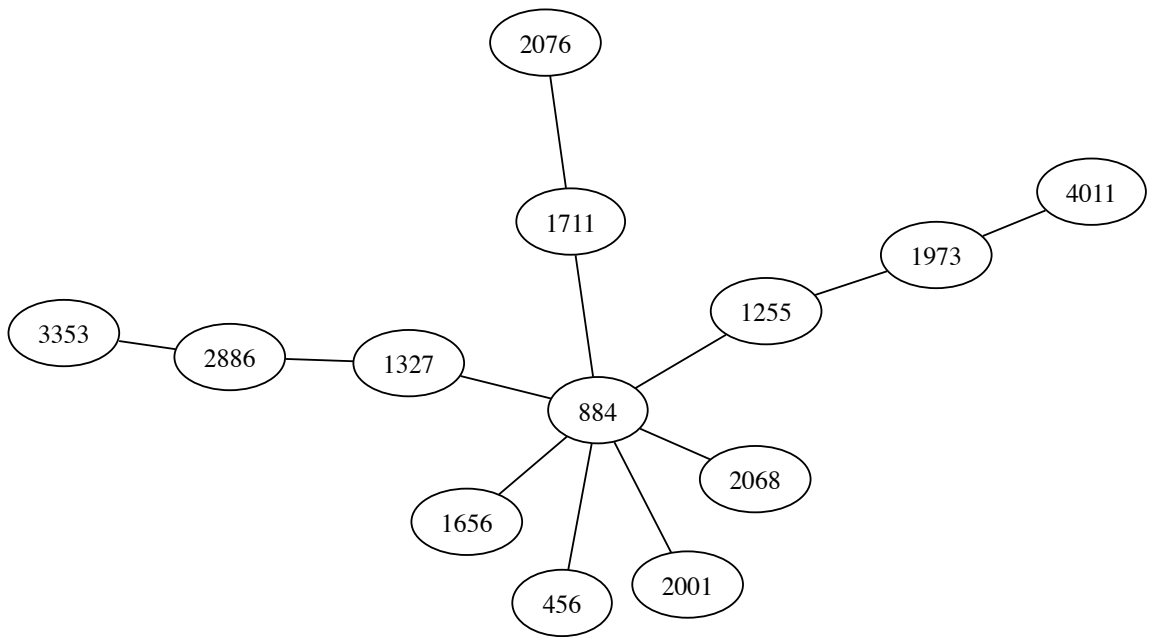

Figure 134a. Selected width-2 mutations between Minkowski polynomials in bucket 134

Table 134. Laurent polynomials and selected mutations for bucket 134.

Node	Laurent polynomial	Mutations from Figure 134a
456	$xz^2 + 2xz + x + \frac{x}{y} + y + 4z + \frac{6}{x} + \frac{2}{xz} + \frac{4}{x^2z} + \frac{1}{x^3z^2}$	884: $\left(x+y, \frac{x+y}{z}, \frac{y}{x(x+y)}\right)$
884	$x + \frac{x}{z} + \frac{2x}{y} + \frac{x}{y^2} + y + \frac{y}{z} + z + \frac{3}{y} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	456: $\left(\frac{x}{xz+1}, \frac{x^2z}{xz+1}, y\right)$ 1255: $(x(y+1), xy(y+1), z)$ 1327: $(xy(y+1), x(y+1), z(y+1))$ 1656: $\left(\frac{yz}{z+1}, \frac{xz}{z+1}, z\right)$ 1711: $\left(\frac{(x+y)^2}{x^2y}, \frac{(x+y)^2}{xy^2}, \frac{(x+y)^2}{xy^2z}\right)$ 2001: $\left(\frac{x^2yz}{(y+1)(xz+1)}, \frac{xy}{(y+1)(xz+1)}, y\right)$ 2068: $\left(\frac{xz}{y+z+1}, \frac{xy}{y+z+1}, \frac{x}{y+z+1}\right)$
1255	$xy^2 + \frac{xy^2}{z} + 2xy + \frac{2xy}{z} + x + \frac{x}{z} + 2y + z + \frac{2}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{1}{xy^2}$	884: $\left(\frac{x^2}{x+y}, \frac{y}{x}, z\right)$ 1973: $\left(\frac{1+y(xz+1)^2}{x^3yz^2}, \frac{x^2yz}{1+y(xz+1)^2}, y\right)$
1327	$xy^2 + 2xy + \frac{xy}{z} + x + \frac{x}{z} + yz + 2y + z + \frac{2}{y} + \frac{1}{x} + \frac{2}{xy} + \frac{1}{xy^2}$	884: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{x}{z}\right)$ 2886: $\left(\frac{y^2z+(yz+1)^2}{x}, \frac{xyz}{y^2z+(yz+1)^2}, y\right)$
1656	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{3}{y} + \frac{3}{yz} + \frac{2y}{x} + \frac{3}{x} + \frac{3}{xz} + \frac{y}{x^2} + \frac{y}{x^2z}$	884: $\left(\frac{y(z+1)}{z}, \frac{x(z+1)}{z}, z\right)$
1711	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{3}{y} + \frac{2}{yz} + \frac{yz}{x} + \frac{2y}{x} + \frac{3}{x} + \frac{1}{xz} + \frac{y}{x^2}$	884: $\left(\frac{(x+y)^2}{x^2y}, \frac{(x+y)^2}{xy^2}, \frac{y}{z}\right)$ 2076: $\left(\frac{x^2yz}{xyz+1}, \frac{x}{xyz+1}, z(xyz+1)\right)$
1973	$xz^2 + 2xz + x + y + 4z + \frac{6}{x} + \frac{2}{xz} + \frac{2}{xy} + \frac{2}{xyz} + \frac{4}{x^2z} + \frac{4}{x^2yz} + \frac{1}{x^3z^2} + \frac{2}{x^3yz^2} + \frac{1}{x^3y^2z^2}$	1255: $\left(\frac{x^2y^2+z(xy+1)^2}{xz}, z, \frac{z}{y(x^2y^2+z(xy+1)^2)}\right)$ 4011: $\left(\frac{xy^2}{(y+z)^2}, \frac{(y+z)^2}{y}, \frac{(y+z)^2}{x^2y^2z}\right)$
2001	$xz^2+2xz+x+\frac{xz^2}{y}+y+4z+\frac{4z}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{4}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{1}{x^3yz^2}$	884: $\left(\frac{(z+1)(x+y)}{z}, z, \frac{xz}{y(z+1)(x+y)}\right)$
2068	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{6}{x}+\frac{3}{xz}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	884: $\left(x+y+z, \frac{x}{z}, \frac{y}{z}\right)$

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Table 134 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 134a
2076	$xy^2z^2+xyz^2+2xyz+x+4yz+y+2z+\frac{6}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3y^2z^2}$	1711: $\left(x+y,\frac{x}{y^2z},\frac{yz}{x+y}\right)$
2886	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1327: $\left(\frac{xyz+(xy+1)^2}{x},z,\frac{xy}{z}\right)$ 3353: $\left(x,\frac{xyz+(yz+1)^2}{xz},\frac{xyz^2}{xyz+(yz+1)^2}\right)$
3353	$x+2yz+y+z+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{5yz}{x}+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	2886: $\left(x,\frac{xy^2z}{xyz+(yz+1)^2},\frac{xyz+(yz+1)^2}{xy}\right)$
4011	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+6z+\frac{9z^2}{y}+\frac{4z}{y}+\frac{4z^3}{y^2}+\frac{6}{x}+\frac{2}{xz}+\frac{12z}{xy}+\frac{2}{xy}+\frac{6z^2}{xy^2}+\frac{4}{x^2z}+\frac{8}{x^2y}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1973: $\left(\frac{(x^2yz+1)^2}{x^3y^2z^2},\frac{x^4y^3z^2}{(x^2yz+1)^2},\frac{x^2y^2z}{(x^2yz+1)^2}\right)$

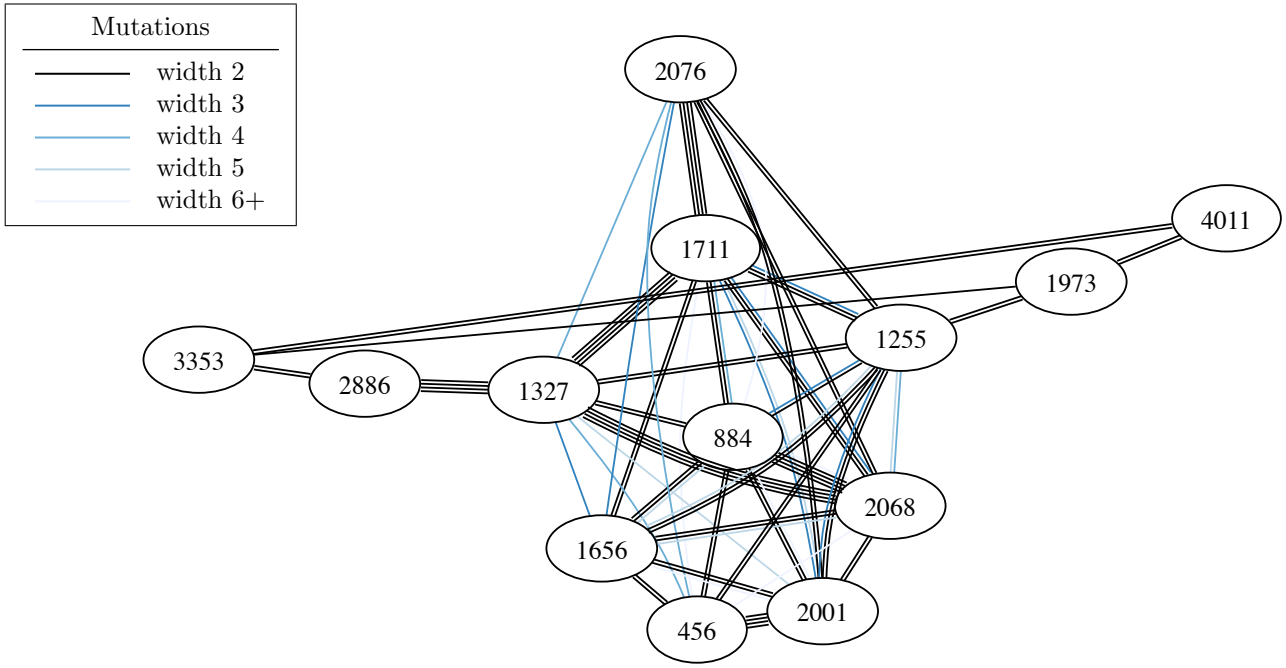

FIGURE 134B. All mutations between Minkowski polynomials in bucket 134

Bucket 135

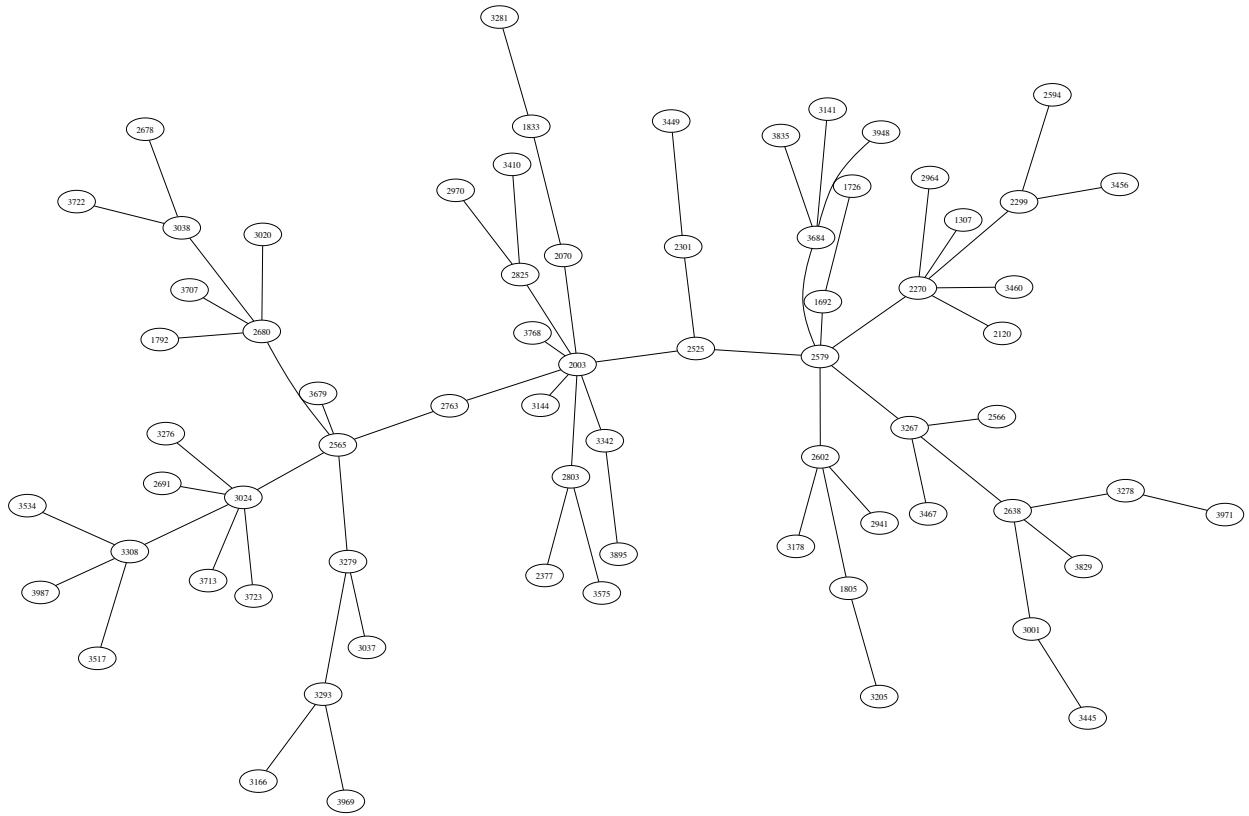

Figure 135a. Selected width-2 mutations between Minkowski polynomials in bucket 135

Table 135. Laurent polynomials and selected mutations for bucket 135.

Node	Laurent polynomial	Mutations from Figure 135a
1307	$\frac{xy}{z}+x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	2270: $\left(\frac{y+1}{xy^2},\frac{y+1}{xy},\frac{y+1}{xy^2z}\right)$
1692	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1726: $\left(\frac{xz+y^2+yz}{xy^2},\frac{y}{z},\frac{x}{y}\right)$ 2579: $\left(xy^2,\frac{1}{y},\frac{(y+1)^2}{xy^2z}\right)$
1726	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{z}{xy}$	1692: $\left(\frac{y+z+1}{xy},\frac{y+z+1}{xyz},\frac{y+z+1}{xy^2z}\right)$
1792	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{yz}+y+z+\frac{1}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{3z}{x^2}+\frac{z}{x^3}$	2680: $\left(x,\frac{1}{z},\frac{xy}{x+1}\right)$
1805	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{1}{x}$	2602: $\left(z,y,\frac{xz}{yz+y+z}\right)$ 3205: $\left(\frac{xy^2z}{y+z(y+1)^2},y,z\right)$
1833	$x^2z+\frac{x^2z}{y}+2xz+x+\frac{2xz}{y}+y+z+\frac{z}{y}+\frac{1}{y}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{y}{x^2z^2}$	2070: $\left(\frac{xyz}{yz+y+1},\frac{1}{y},\frac{yz+y+1}{xy^2z^2}\right)$ 3281: $\left(y,\frac{xy^2}{y^2+z(y+1)^2},\frac{xz}{y^2+z(y+1)^2}\right)$
2003	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^4z^2}$	2070: $\left(\frac{xyz^2+1}{xz^2},z,\frac{x^2yz^2}{xyz^2+1}\right)$ 2525: $\left(\frac{x^3z}{x^2z+xyz+y^2},\frac{x^2z+xyz+y^2}{x^2yz},z\right)$ 2763: $\left(\frac{x+y(xz+1)^2}{x^2},\frac{1}{yz},\frac{x^3yz^2}{x+y(xz+1)^2}\right)$ 2803: $\left(\frac{x+y}{y^2},\frac{xy}{x+y},z\right)$ 2825: $\left(\frac{x+y+z}{y^2},\frac{xy}{x+y+z},\frac{y(x+y+z)}{x^2z}\right)$ 3144: $\left(\frac{x^2}{x+y},\frac{y}{x},\frac{z(x+y)}{x}\right)$ 3342: $\left(\frac{x^5y^2z^4}{(x^2yz^2+xyz+1)^2},\frac{(x^2yz^2+xyz+1)^2}{x^4y^2z^3},y\right)$ 3768: $\left(\frac{(xy+1)(xy+(xyz+1)^2)}{x^3y^2},\frac{1}{z},\frac{x^4y^3z^2}{(xy+1)(xy+(xyz+1)^2)}\right)$
2070	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	1833: $\left(\frac{x(xyz+xz+y)}{y},\frac{1}{y},\frac{y}{xz}\right)$ 2003: $\left(\frac{xy^2z+1}{xy^2},\frac{x^2y^2z}{xy^2z+1},y\right)$
2120	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{3z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	2270: $\left(\frac{(z+1)(y+1)}{xy^2z},\frac{(z+1)(y+1)}{xy},z\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
2270	$xy^2+2xy+x+yz+2y+z+\frac{2}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1307: $\left(\frac{x+y}{y^2}, \frac{y}{x}, \frac{x}{z}\right)$ 2120: $\left(\frac{(z+1)(xz+y)}{y^2}, \frac{y}{xz}, z\right)$ 2299: $\left(\frac{x^2+yz}{y^2z}, \frac{y}{x}, \frac{x^2}{yz}\right)$ 2579: $\left(xy^2, \frac{1}{y}, \frac{xy^2z}{(y+1)(xy+1)}\right)$ 2964: $\left(\frac{x^2}{x+y}, \frac{y}{x}, z\right)$ 3460: $\left(\frac{xy^2}{(y+z)^2}, \frac{z}{y}, y\right)$
2299	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y}{x^2}$	2270: $\left(\frac{z+1}{xy}, \frac{z+1}{x}, \frac{z+1}{xy^2z}\right)$ 2594: $\left(\frac{x}{y}, \frac{x^2z}{xz+x+yz}, \frac{xz+x+yz}{xy}\right)$ 3456: $\left(y, \frac{xy^2z}{(y+1)(yz+y+z)}, \frac{(y+1)(yz+y+z)}{xy}\right)$
2301	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	2525: $\left(x, y, \frac{y(xy+x+y)}{x^2z}\right)$ 3449: $\left(\frac{x}{y^2z+yz+1}, \frac{xyz}{y^2z+yz+1}, z\right)$
2377	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{2z^2}{xy^3}+\frac{z^2}{xy^4}$	2803: $\left(x+y, \frac{xz}{x+y}, \frac{yz}{x+y}\right)$
2525	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2003: $\left(\frac{x^2y^2z+xyz+1}{xy^2z}, \frac{x^2y^2z+xyz+1}{x^2y^3z}, z\right)$ 2301: $\left(x, y, \frac{y(xy+x+y)}{x^2z}\right)$ 2579: $\left(y(xy+1), \frac{xy+1}{x}, z\right)$
2565	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2680: $\left(x, y, \frac{xz}{x+1}\right)$ 2763: $\left(\frac{xyz}{yz+1}, \frac{x}{yz+1}, \frac{y}{yz+1}\right)$ 3024: $\left(x, \frac{xy+xz+y}{yz}, \frac{y}{z}\right)$ 3279: $\left(y, \frac{xy}{y+1}, \frac{1}{z}\right)$ 3679: $\left(y, \frac{(yz+y+z)^2}{xyz}, z\right)$
2566	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	3267: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
2579	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	1692: $\left(xy^2, \frac{1}{y}, \frac{(y+1)^2}{xy^2z}\right)$ 2270: $\left(xy^2, \frac{1}{y}, \frac{z(y+1)(xy+1)}{xy}\right)$ 2525: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, z\right)$ 2602: $\left(\frac{xz+y^2+yz}{xy^2}, \frac{y}{z}, \frac{x^2z}{xz+y^2+yz}\right)$ 3267: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{z(x+y)}{x}\right)$ 3684: $\left(\frac{(yz+y+1)(yz^2+yz+1)}{xy}, \frac{1}{z}, \frac{x}{(yz+y+1)(yz^2+yz+1)}\right)$
2594	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2299: $\left(\frac{x^2+xyz+yz}{xz}, \frac{x^2+xyz+yz}{x^2z}, \frac{yz}{x}\right)$
2602	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}$	1805: $\left(\frac{z(xy+x+y)}{x}, y, x\right)$ 2579: $\left(\frac{xy^2z+y+1}{xy^2}, \frac{xy^2z+y+1}{x^2y^3z}, \frac{xy^2z+y+1}{x^2y^2z}\right)$ 2941: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 3178: $\left(x, \frac{xy^2z}{(yz+1)(x+yz+1)}, \frac{xy}{(yz+1)(x+yz+1)}\right)$
2638	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{1}{xy}$	3001: $\left(\frac{z(x+y)}{xy}, \frac{x}{y}, z\right)$ 3267: $\left(\frac{y^3z}{x+y^2z+y}, \frac{x+y^2z+y}{xy}, \frac{xy^2z}{x+y^2z+y}\right)$ 3278: $\left(\frac{x^2z}{xz+yz+y}, z, \frac{x}{y}\right)$ 3829: $\left(\frac{(z+1)(yz+y+1)}{xz}, z, y\right)$
2678	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xy}$	3038: $\left(y, \frac{yz+y+z}{xz}, z\right)$
2680	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	1792: $\left(x, \frac{z(x+1)}{x}, \frac{1}{y}\right)$ 2565: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3020: $\left(x, \frac{(y+z)(x+1)}{yz}, \frac{y}{z}\right)$ 3038: $\left(x, \frac{x(y+z)}{yz}, \frac{y}{z}\right)$ 3707: $\left(y, \frac{(z+1)^2(y+1)}{xz}, z\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
2691	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	3024: $\left(x, \frac{x+y+1}{z}, y\right)$
2763	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2003: $\left(\frac{xy^2z+(xyz+1)^2}{x^2y^2z}, \frac{xy^2z+(xyz+1)^2}{x^3y^4z^2}, \frac{x^3y^3z^2}{xy^2z+(xyz+1)^2}\right)$ 2565: $\left(x+y, \frac{z(x+y)}{y}, \frac{x}{z(x+y)}\right)$
2803	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2y^2}{x^2z}+\frac{y}{x^2}+\frac{4y}{x^2z}+\frac{2y^2}{x^3z}+\frac{y^2}{x^3z^2}+\frac{y^3}{x^4z^2}$	2003: $\left(y(xy+1), \frac{xy+1}{x}, z\right)$ 2377: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, y+z\right)$ 3575: $\left(\frac{x^2}{(yz+1)(x+z)}, \frac{x^2yz}{(yz+1)(x+z)}, \frac{y(yz+1)(x+z)}{x}\right)$
2825	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	2003: $\left(\frac{x^2y^3z+xy^2z+1}{xyz}, \frac{x^2y^3z+xy^2z+1}{x^2y^2z}, \frac{x^2y^3z+xy^2z+1}{x^3y^4z^2}\right)$ 2970: $\left(x, y, \frac{xyz}{xy+x+y}\right)$ 3410: $\left(x, y, \frac{x^2y^2z}{(xy+x+y)^2}\right)$
2941	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	2602: $\left(x, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$
2964	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	2270: $(x(y+1), xy(y+1), z)$
2970	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2825: $\left(x, y, \frac{z(xy+x+y)}{xy}\right)$
3001	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2638: $\left(\frac{z(y+1)}{x}, \frac{z(y+1)}{xy}, z\right)$ 3445: $\left(y, z, \frac{(yz+y+z)^2}{xy^2z}\right)$
3020	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{x^2z}+\frac{1}{x^2y}$	2680: $\left(x, \frac{(z+1)(x+1)}{y}, \frac{(z+1)(x+1)}{yz}\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
3024	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	2565: $\left(x, \frac{xz+x+z}{y}, \frac{xz+x+z}{yz}\right)$ 2691: $\left(x, z, \frac{x+z+1}{y}\right)$ 3276: $\left(y, \frac{xyz}{yz+y+1}, z\right)$ 3308: $\left(y, z, \frac{(y+1)(y+z+1)}{xy}\right)$ 3713: $\left(y, \frac{xy^2z}{(y+1)(yz+y+1)}, z\right)$ 3723: $\left(y, z, \frac{(y+1)^2(y+z+1)}{xy^2}\right)$
3037	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{1}{xyz}$	3279: $\left(y, \frac{yz+y+1}{x}, \frac{xyz}{yz+y+1}\right)$
3038	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{1}{xy}$	2678: $\left(\frac{xz+x+z}{yz}, z, x\right)$ 2680: $\left(x, \frac{x(z+1)}{y}, \frac{x(z+1)}{yz}\right)$ 3722: $\left(\frac{(y+z+1)(yz+y+z)}{xyz}, z, y\right)$
3141	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{4z}{y}+\frac{4z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{6}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{4}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	3684: $\left(x, y(z+1)^2, \frac{yz(z+1)^2}{x}\right)$
3144	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xyz}+\frac{y}{x^2}$	2003: $\left(x(y+1), xy(y+1), \frac{z}{y+1}\right)$
3166	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3293: $\left(x, \frac{xz+(z+1)^2}{yz}, \frac{1}{z}\right)$
3178	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{4z}{x}+\frac{3}{x}+\frac{6}{xy}+\frac{1}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^3z^2}$	2602: $\left(x, \frac{(y+z)(xz+y+z)}{xz}, \frac{xy}{(y+z)(xz+y+z)}\right)$
3205	$x+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	1805: $\left(\frac{x(y+z(y+1)^2)}{y^2z}, y, z\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
3267	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2566: $\left(x, y, \frac{(x+y)^2}{xy^2z}\right)$ 2579: $\left(x(y+1), xy(y+1), \frac{z}{y+1}\right)$ 2638: $\left(\frac{xyz+x+z}{xy}, \frac{xyz+x+z}{yz}, \frac{y^2z^2}{xyz+x+z}\right)$ 3467: $\left(x, y, \frac{xz}{x+y}\right)$
3276	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	3024: $\left(\frac{y(xz+x+1)}{xz}, x, z\right)$
3278	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	2638: $\left(\frac{x(yz+y+1)}{yz}, \frac{x(yz+y+1)}{yz^2}, y\right)$ 3971: $\left(y, \frac{xy^2z^2}{(yz+z+1)^2}, z\right)$
3279	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2z}$	2565: $\left(\frac{y(x+1)}{x}, x, \frac{1}{z}\right)$ 3037: $\left(\frac{x+yz+1}{y}, x, \frac{yz}{x}\right)$ 3293: $\left(x, y, \frac{y+1}{yz}\right)$
3281	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	1833: $\left(y+z(x+1)^2, x, \frac{x^2z}{y}\right)$
3293	$x+\frac{x}{y}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3166: $\left(x, \frac{xz+(z+1)^2}{yz}, \frac{1}{z}\right)$ 3279: $\left(x, y, \frac{y+1}{yz}\right)$ 3969: $\left(y, \frac{xyz}{yz+(z+1)^2}, \frac{1}{z}\right)$
3308	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3024: $\left(\frac{(x+1)(x+y+1)}{xz}, x, y\right)$ 3517: $\left(y, \frac{xy}{y+1}, z\right)$ 3534: $\left(x, \frac{yz}{z+1}, z\right)$ 3987: $\left(y, \frac{xyz}{(z+1)(y+1)}, z\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
3342	$xz^2+2xz+x+y+4z+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{4}{x^2z}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{6}{x^3yz^2}+\frac{1}{x^3y^2z^2}+\frac{2}{x^4yz^3}+\frac{2}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	2003: $\left(\frac{(x^2y^2z+xyz+1)^2}{x^3y^4z^2}, z, \frac{x^4y^5z^2}{(x^2y^2z+xyz+1)^2}\right)$ 3895: $\left(\frac{x^2}{x+y^2z+y}, \frac{z(x+y^2z+y)}{x}, \frac{x+y^2z+y}{x^2yz}\right)$
3410	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{4y}{x^2z}+\frac{3}{x^2z}+\frac{2y^2}{x^3z}+\frac{3y}{x^3z}+\frac{y^2}{x^4z}$	2825: $\left(x, y, \frac{z(xy+x+y)^2}{x^2y^2}\right)$
3445	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	3001: $\left(\frac{(xy+x+y)^2}{x^2yz}, x, y\right)$
3449	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{3y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2301: $\left(\frac{x^2z+xyz+y^2}{xz}, \frac{y}{xz}, z\right)$
3456	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	2299: $\left(\frac{(x+1)(x^2+xyz+yz)}{x^2z}, x, \frac{yz}{x}\right)$
3460	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2270: $(x(y+1)^2, z, yz)$
3467	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	3267: $\left(x, y, \frac{z(x+y)}{x}\right)$
3517	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3308: $\left(\frac{y(x+1)}{x}, x, z\right)$
3534	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3308: $\left(x, \frac{y(z+1)}{z}, z\right)$
3575	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{2y^2z^2}{x}+\frac{2yz^2}{x}+\frac{5yz}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y^2z^3}{x^2}+\frac{4yz^2}{x^2}+\frac{6z}{x^2}+\frac{4}{x^2y}+\frac{1}{x^2y^2z}$	2803: $\left(\frac{(x+y)(x^2z+y)}{x^2z}, \frac{x^3z^2}{(x+y)(x^2z+y)}, \frac{y(x+y)(x^2z+y)}{x^4z^2}\right)$
3679	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{6z}{xy}+\frac{6}{xy}+\frac{1}{xyz}+\frac{4z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	2565: $\left(\frac{(xz+x+z)^2}{xyz}, x, z\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
3684	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2579: $\left(\frac{(xyz+y+1)(xy^2z+y+1)}{x^2y^3z}, \frac{1}{xz}, \frac{1}{y}\right)$ 3141: $\left(x, \frac{y^3}{(xz+y)^2}, \frac{xz}{y}\right)$ 3835: $\left(x, \frac{xy^3z}{(y+z)(xyz+(y+z)^2)}, \frac{z}{y}\right)$ 3948: $\left(x, \frac{(xz+1)^2}{x^3yz^2}, xz\right)$
3707	$x+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	2680: $\left(\frac{(z+1)^2(x+1)}{yz}, x, z\right)$
3713	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	3024: $\left(\frac{y(x+1)(xz+x+1)}{x^2z}, x, z\right)$
3722	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{5}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3038: $\left(\frac{(y+z+1)(yz+y+z)}{xyz}, z, y\right)$
3723	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xyz}+\frac{z}{xy^2}+\frac{2}{xy^2}+\frac{1}{xy^2z}$	3024: $\left(\frac{(x+1)^2(x+y+1)}{x^2z}, x, y\right)$
3768	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{6}{x^2y}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2003: $\left(\frac{(xy^2z+1)(xy^2z+(xyz+1)^2)}{x^3y^4z^2}, \frac{x^4y^6z^3}{(xy^2z+1)(xy^2z+(xyz+1)^2)}, \frac{1}{y}\right)$
3829	$x+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{5}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2638: $\left(\frac{(y+1)(yz+z+1)}{xy}, z, y\right)$
3835	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{6}{x}+\frac{3}{xz}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}+\frac{y^2}{x^2z^3}+\frac{5y}{x^2z^2}+\frac{10}{x^2z}+\frac{10}{x^2y}+\frac{5z}{x^2y^2}+\frac{z^2}{x^2y^3}$	3684: $\left(x, \frac{y(z+1)(xz+(z+1)^2)}{xz}, \frac{y(z+1)(xz+(z+1)^2)}{x}\right)$
3895	$x+y^2z+2yz+y+z+\frac{2}{yz}+\frac{2y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{6y^2z}{x}+\frac{5yz}{x}+\frac{6y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y^4z^3}{x^2}+\frac{5y^3z^2}{x^2}+\frac{10y^2z}{x^2}+\frac{10y}{x^2}+\frac{5}{x^2z}+\frac{1}{x^2yz^2}$	3342: $\left(\frac{x^3yz^2+xz+1}{x^2yz^2}, \frac{x^3yz^2+xz+1}{x^4y^2z^3}, \frac{x^3y^2z^2}{x^3yz^2+xz+1}\right)$
3948	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{xz^2}{y}+y+4z+\frac{6z^2}{y}+\frac{4z}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{6}{xy}+\frac{4}{x^2z}+\frac{20}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{1}{x^3yz^2}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	3684: $\left(x, \frac{(z+1)^2}{xyz^2}, \frac{z}{x}\right)$
3969	$x+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{10}{xy}+\frac{6}{xyz}+\frac{1}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3293: $\left(\frac{y(xz+(z+1)^2)}{xz}, x, \frac{1}{z}\right)$

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Table 135 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 135a
3971	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{7}{xy}+\frac{8}{xyz}+\frac{3}{xyz^2}+\frac{z}{xy^2}+\frac{4}{xy^2}+\frac{6}{xy^2z}+\frac{4}{xy^2z^2}+\frac{1}{xy^2z^3}$	3278: $\left(\frac{y(xz+z+1)^2}{x^2z^2}, x, z\right)$
3987	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{7}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3308: $\left(\frac{y(z+1)(x+1)}{xz}, x, z\right)$

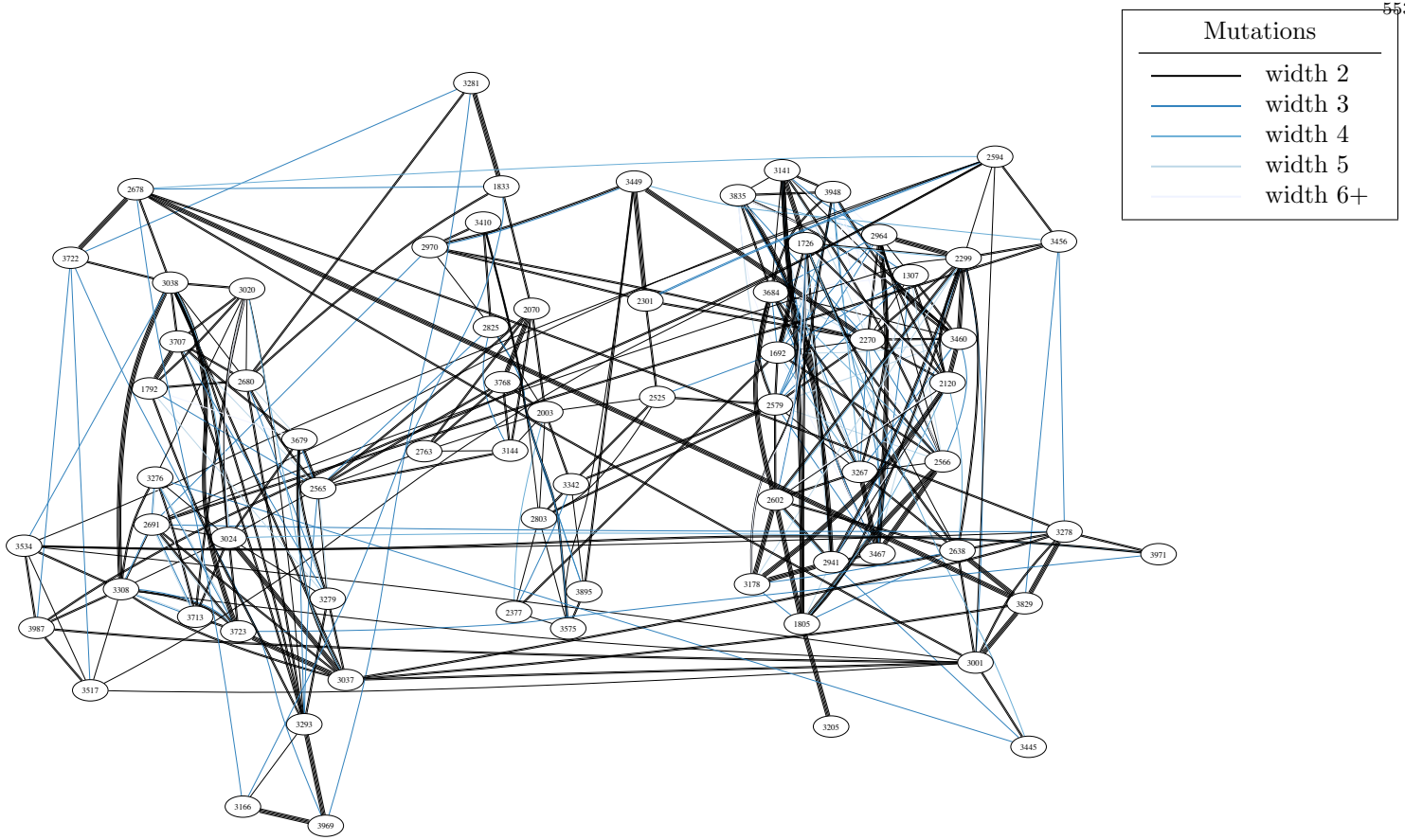
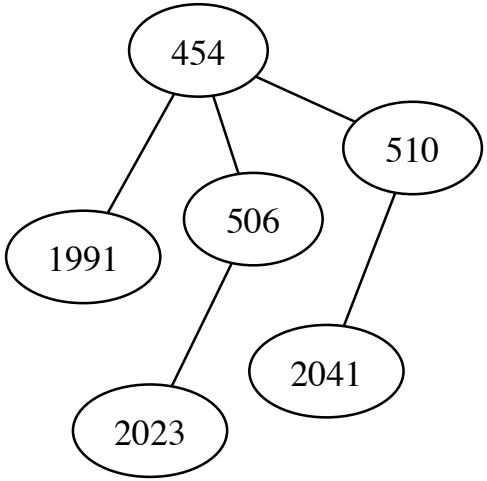
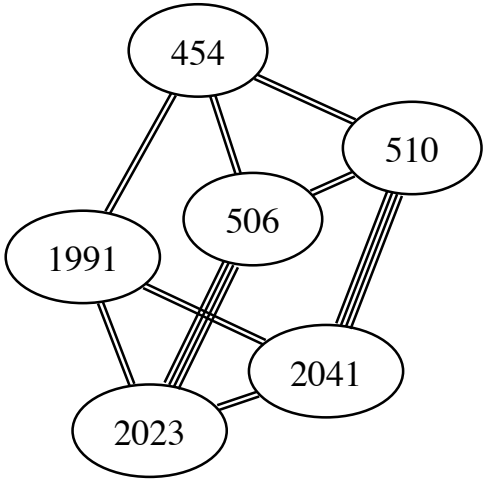


Figure 135b. All mutations between Minkowski polynomials in bucket 135

Bucket 136



(a) A spanning tree consisting of width-2 mutations



(b) All mutations are of width 2

Figure 136. Mutations between Minkowski polynomials in bucket 136

Table 136. Laurent polynomials and selected mutations for bucket 136.

Node	Laurent polynomial	Mutations from Figure 136a
454	$xz^2 + 2xz + x + y + 4z + \frac{1}{y} + \frac{6}{x} + \frac{2}{xz} + \frac{4}{x^2z} + \frac{1}{x^3z^2}$	506: $\left(\frac{(x+y)^3}{x^2y^2}, z, \frac{x^3y}{(x+y)^3}\right)$ 510: $\left(\frac{(z+1)^2}{yz^2}, \frac{1}{x}, \frac{yz^3}{(z+1)^2}\right)$ 1991: $\left(\frac{x^3yz^2+(xz+1)^4}{x^3z^2}, \frac{x^3yz^2+(xz+1)^4}{x^4yz^2}, \frac{x^2z}{x^3yz^2+(xz+1)^4}\right)$
506	$x + \frac{2x}{y} + \frac{x}{y^2} + y + z + \frac{1}{z} + \frac{3}{y} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	454: $\left(\frac{(xz+1)^3}{x^2z}, \frac{(xz+1)^3}{x^3z^2}, y\right)$ 2023: $\left(\frac{x^2z}{xy+xz+1}, \frac{x^2y}{xy+xz+1}, \frac{x}{xy+xz+1}\right)$
510	$x + yz^2 + 2yz + y + 2z + \frac{2}{z} + \frac{1}{y} + \frac{2}{yz} + \frac{1}{yz^2} + \frac{1}{x}$	454: $\left(\frac{1}{y}, \frac{(xz+1)^2}{x^3z^2}, xz\right)$ 2041: $\left(\frac{x^2y}{xy+(xyz+1)^2}, \frac{xy+(xyz+1)^2}{x^3y^2z^2}, xyz\right)$
1991	$xz^2+2xz+x+y+4z+\frac{z^2}{y}+\frac{7}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{4}{x^2z}+\frac{6}{x^2y}+\frac{1}{x^3z^2}+\frac{4}{x^3yz}+\frac{1}{x^4yz^2}$	454: $\left(\frac{x^3z^2+y(xz+1)^4}{x^3yz^2}, \frac{x^4z^2}{x^3z^2+y(xz+1)^4}, \frac{x^2yz}{x^3z^2+y(xz+1)^4}\right)$
2023	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{7}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	506: $\left(x + y + z, \frac{y}{z(x+y+z)}, \frac{x}{z(x+y+z)}\right)$
2041	$xy^2z^2 + 2xyz + x + yz^2 + 4yz + y + \frac{2z}{x} + \frac{7}{x} + \frac{2}{xz} + \frac{2}{xyz} + \frac{1}{x^2y} + \frac{4}{x^2yz} + \frac{1}{x^2yz^2} + \frac{1}{x^3y^2z^2}$	510: $\left(\frac{xyz^2+(z+1)^2}{yz^2}, \frac{xy^2z^4}{xyz^2+(z+1)^2}, \frac{1}{xyz}\right)$

Bucket 137

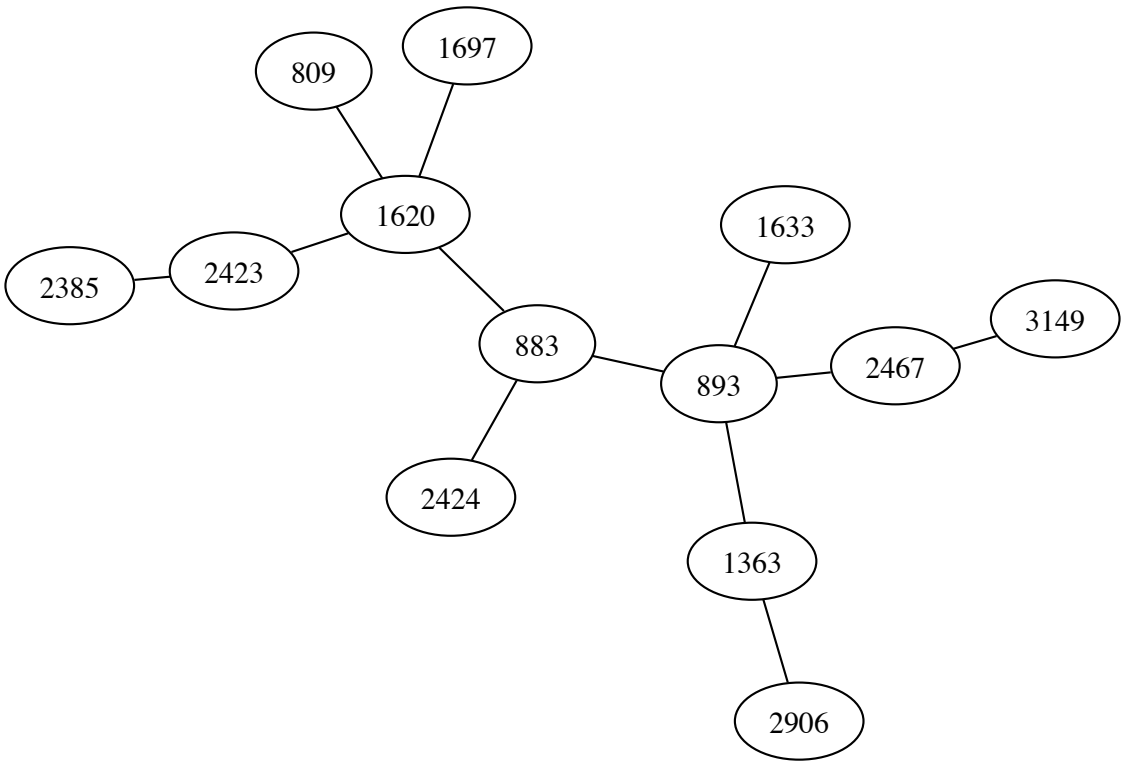


Figure 137a. Selected width-2 mutations between Minkowski polynomials in bucket 137

Table 137. Laurent polynomials and selected mutations for bucket 137.

Node	Laurent polynomial	Mutations from Figure 137a
809	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	1620: $\left(\frac{x^2y^2z+(x+y)^3}{x^2y^2}, \frac{x^2y^3z}{x^2y^2z+(x+y)^3}, \frac{x^3y^2z}{x^2y^2z+(x+y)^3}\right)$
883	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	893: $\left(\frac{yz+1}{z}, \frac{yz+1}{yz^2}, x\right)$ 1620: $\left(\frac{xyz}{yz+1}, \frac{y^2z}{yz+1}, \frac{yz+1}{y}\right)$ 2424: $\left(\frac{(z+1)(xyz^2+(z+1)^2)}{xz^2}, \frac{(z+1)(xyz^2+(z+1)^2)}{xz}, \frac{(z+1)(xyz^2+(z+1)^2)}{x^2yz^3}\right)$
893	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{1}{x}$	883: $\left(z, \frac{x^2}{x+y}, \frac{x+y}{xy}\right)$ 1363: $\left(\frac{1}{z}, \frac{x+y}{x^2}, \frac{x}{y}\right)$ 1633: $\left(\frac{1}{y}, \frac{(xz+y)^2}{xy^2}, \frac{y}{xz}\right)$ 2467: $\left(\frac{x^2z}{xz+(xyz+1)^2}, \frac{x}{xz+(xyz+1)^2}, xyz\right)$
1363	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y}{x^2}$	893: $\left(\frac{z+1}{yz}, \frac{z+1}{yz^2}, \frac{1}{x}\right)$ 2906: $\left(\frac{yz+(y+z)^3}{xyz^2}, \frac{yz+(y+z)^3}{xy^2z}, \frac{yz+(y+z)^3}{xyz}\right)$
1620	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	809: $\left(\frac{xy^2z^2+(y+z)^3}{xy^2z}, \frac{xy^2z^2+(y+z)^3}{xyz^2}, \frac{x^2y^2z^2}{xy^2z^2+(y+z)^3}\right)$ 883: $\left(\frac{x(yz+1)}{yz}, \frac{yz+1}{z}, \frac{yz^2}{yz+1}\right)$ 1697: $\left(x, y, \frac{(x+y)^2}{xy^3z}\right)$ 2423: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, y+z\right)$
1633	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y^2}{x^3z^2}$	893: $\left(\frac{(z+1)^2}{yz^2}, \frac{1}{x}, \frac{yz}{x(z+1)^2}\right)$
1697	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xyz}+\frac{y}{x^2}$	1620: $\left(x, y, \frac{(x+y)^2}{xy^3z}\right)$
2385	$xz^2+2xz+x+\frac{xz^3}{y}+y+5z+\frac{5z^2}{y}+\frac{7}{x}+\frac{2}{xz}+\frac{10z}{xy}+\frac{4}{x^2z}+\frac{10}{x^2y}+\frac{1}{x^3z^2}+\frac{5}{x^3yz}+\frac{1}{x^4yz^2}$	2423: $\left(x, \frac{(y+z)^4}{x^2y^2z^3}, \frac{y}{xz}\right)$
2423	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{7}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	1620: $\left(x+y, \frac{xz}{x+y}, \frac{yz}{x+y}\right)$ 2385: $\left(x, \frac{(xz+1)^4}{x^3yz}, \frac{(xz+1)^4}{x^4yz^2}\right)$

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Table 137 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 137a
2424	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{4z}{x}+\frac{7}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{1}{x^2y}+\frac{3}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^2yz^3}$	883: $\left(\frac{(x+y)(x^2y+z(x+y)^2)}{x^2y^2z}, \frac{x^4y}{(x+y)(x^2y+z(x+y)^2)}, \frac{y}{x}\right)$
2467	$xy^2z^2+2xyz+x+y^2z+4yz+y+z+\frac{2y}{x}+\frac{7}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	893: $\left(x+y(z+1)^2, \frac{yz}{x}, \frac{x}{y(x+y(z+1)^2)}\right)$ 3149: $\left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{y}{(xyz+1)^2}\right)$
2906	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{7}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	1363: $\left(\frac{x^2y^2+z(x+y)^3}{x^2y^2z}, \frac{z}{y}, \frac{z}{x}\right)$
3149	$xy^2z^2+2xyz+x+yz^2+4yz+y+z+\frac{4z}{x}+\frac{7}{x}+\frac{2}{xy}+\frac{2}{xyz}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}+\frac{4}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^4y^3z^2}$	2467: $\left(x, \frac{(xyz+1)^2}{x^2y^2z}, \frac{y}{(xyz+1)^2}\right)$

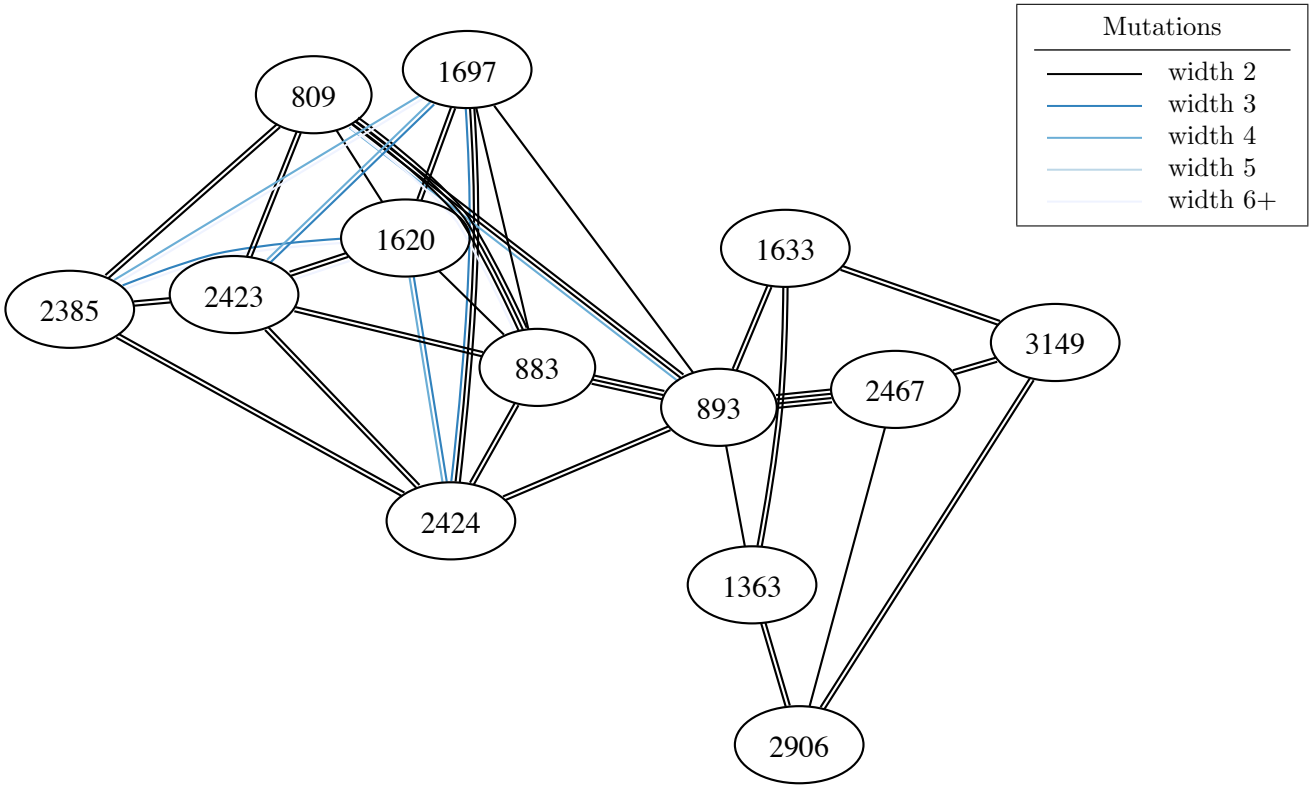

FIGURE 137B. All mutations between Minkowski polynomials in bucket 137

Bucket 138

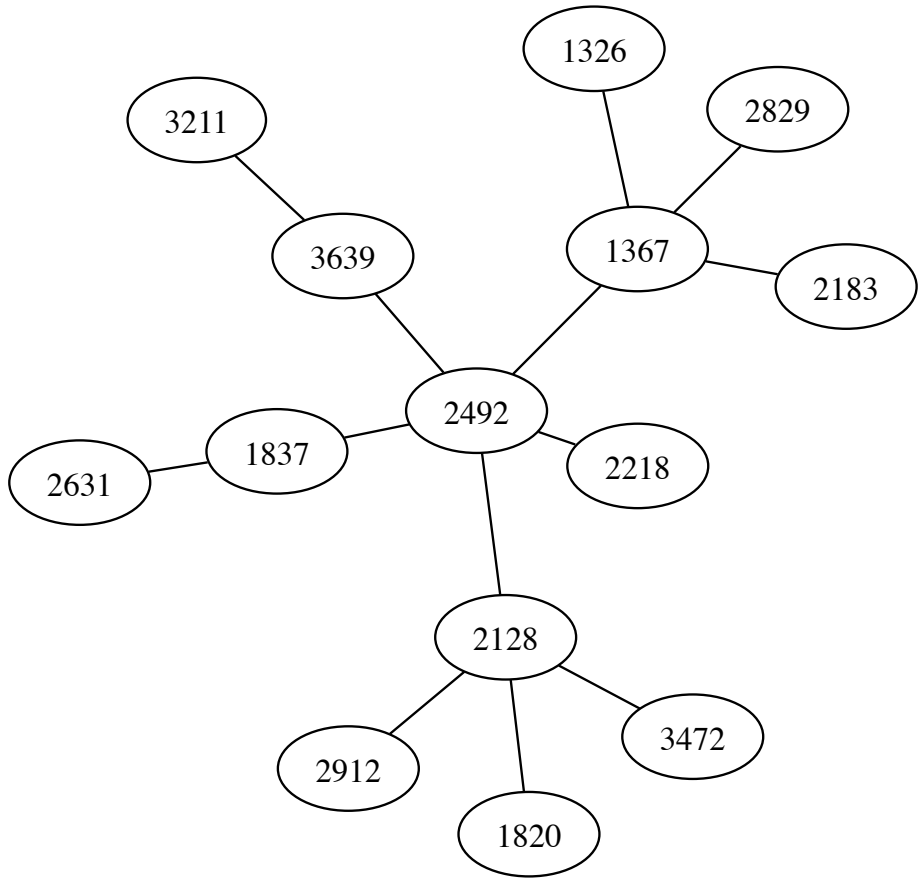

Figure 138a. Selected width-2 mutations between Minkowski polynomials in bucket 138

Table 138. Laurent polynomials and selected mutations for bucket 138.

Node	Laurent polynomial	Mutations from Figure 138a
1326	$xyz + xz^2 + 2xz + x + y + 2z + \frac{2}{z} + \frac{1}{y} + \frac{1}{yz} + \frac{1}{x} + \frac{2}{xz} + \frac{1}{xz^2}$	1367: $\left(\frac{x^2}{x+y}, \frac{yz}{x+y}, \frac{x+y}{xy}\right)$
1367	$x + \frac{x}{z} + \frac{2x}{y} + \frac{x}{yz} + \frac{x}{y^2} + y + z + \frac{1}{z} + \frac{3}{y} + \frac{2y}{x} + \frac{3}{x} + \frac{y}{x^2}$	1326: $\left(\frac{xz+1}{z}, \frac{xz+1}{xz^2}, y(xz+1)\right)$ 2183: $\left(\frac{xyz+(x+y)^2}{xy^2}, \frac{xyz+(x+y)^2}{x^2y}, \frac{xyz+(x+y)^2}{xy^2z}\right)$ 2492: $\left(\frac{xz}{yz+y+z}, \frac{xy}{yz+y+z}, \frac{1}{y}\right)$ 2829: $\left(\frac{x^2yz}{xyz+xz+y^2}, \frac{xy^2}{xyz+xz+y^2}, \frac{x^2z}{xyz+xz+y^2}\right)$
1820	$x + \frac{2x}{y} + \frac{x}{yz} + \frac{x}{y^2} + y + z + \frac{1}{z} + \frac{z}{y} + \frac{3}{y} + \frac{2y}{x} + \frac{z}{x} + \frac{3}{x} + \frac{y}{x^2}$	2128: $\left(\frac{(yz+1)(y^2z+(yz+1)^2)}{xyz}, \frac{(yz+1)(y^2z+(yz+1)^2)}{xy^2z^2}, y\right)$
1837	$x + yz^2 + 2yz + y + 2z + \frac{2}{z} + \frac{1}{y} + \frac{2}{yz} + \frac{1}{yz^2} + \frac{yz}{x} + \frac{y}{x} + \frac{1}{x} + \frac{1}{xz}$	2492: $\left(\frac{1}{y}, \frac{xz^2}{(y+z)(yz+y+z)}, \frac{(y+z)(yz+y+z)}{xyz}\right)$ 2631: $\left(\frac{x+yz+y}{y^2z}, \frac{x+yz+y}{y^2}, \frac{xy}{x+yz+y}\right)$
2128	$x+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1820: $\left(\frac{(x+y)(xyz+(x+y)^2)}{x^2y^2}, z, \frac{x}{yz}\right)$ 2492: $\left(x, \frac{xz}{xyz+(y+z)^2}, \frac{xyz+(y+z)^2}{xy}\right)$ 2912: $\left(\frac{x^2y^2z+(x+y)^3}{x^2y^2}, \frac{x^2y^2z+(x+y)^3}{x^2y^3z}, \frac{x^3y^2z}{x^2y^2z+(x+y)^3}\right)$ 3472: $\left(\frac{x^2z}{xz+1}, \frac{x}{xz+1}, \frac{y(xz+1)}{xz}\right)$
2183	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{z}{y} + \frac{4}{y} + \frac{2}{yz} + \frac{2y}{x} + \frac{z}{x} + \frac{3}{x} + \frac{1}{xz} + \frac{y}{x^2}$	1367: $\left(\frac{x^2y+z(x+y)^2}{xy^2z}, \frac{x^2y+z(x+y)^2}{x^2yz}, \frac{x}{z}\right)$
2218	$x + \frac{2x}{y} + \frac{x}{yz} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{1}{z} + \frac{3}{y} + \frac{2}{yz} + \frac{2y}{x} + \frac{3}{x} + \frac{1}{xz} + \frac{y}{x^2}$	2492: $\left(\frac{(y+z)^2(yz+y+z)}{xy^2z}, \frac{(y+z)^2(yz+y+z)}{xyz^2}, \frac{1}{y}\right)$
2492	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	1367: $\left(\frac{xz+x+yz}{z}, \frac{1}{z}, \frac{x}{yz}\right)$ 1837: $\left(\frac{(yz+1)(xyz+x+yz)}{xyz^2}, \frac{1}{x}, \frac{yz}{x}\right)$ 2128: $\left(x, \frac{xz}{xyz+(yz+1)^2}, \frac{xyz^2}{xyz+(yz+1)^2}\right)$ 2218: $\left(\frac{(x+y)^2(xz+x+yz)}{x^2y^2z}, \frac{1}{z}, \frac{x}{yz}\right)$ 3639: $\left(\frac{x^3y^3z^2+(xyz+1)^4}{x^3y^2z^2}, \frac{x^3y^3z^2+(xyz+1)^4}{x^4y^3z^2}, \frac{x^3y^3z^2+(xyz+1)^4}{x^5y^4z^3}\right)$
2631	$x + \frac{2x}{y} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{z}{y} + \frac{4}{y} + \frac{1}{yz} + \frac{yz}{x} + \frac{2y}{x} + \frac{2z}{x} + \frac{3}{x} + \frac{yz}{x^2} + \frac{y}{x^2}$	1837: $\left(\frac{xz+x+yz}{xyz^2}, \frac{xz+x+yz}{xyz}, \frac{y}{x}\right)$

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Table 138 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 138a
2829	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{5z}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{7}{x}+\frac{3}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	$1367\colon \left(x+y+z, \frac{x}{z}, \frac{x^2}{yz(x+y+z)}\right)$
2912	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	$2128\colon \left(\frac{xyz^2+(yz+1)^3}{xyz}, \frac{xyz^2+(yz+1)^3}{xy^2z^2}, \frac{x^2yz^2}{xyz^2+(yz+1)^3}\right)$
3211	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}$	$3639\colon \left(x, \frac{(xyz+1)^2}{x^3y^3z^2}, \frac{(xyz+1)^2}{x^2y^2z}\right)$
3472	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{7}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{1}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	$2128\colon \left(x+y, \frac{xz}{x+y}, \frac{x}{y(x+y)}\right)$
3639	$xy^2z^2+2xyz+x+yz^2+4yz+y+z+\frac{5z}{x}+\frac{7}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{10}{x^2y}+\frac{5}{x^2yz}+\frac{3}{x^2y^2z}+\frac{10}{x^3y^2z}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^3z^2}+\frac{5}{x^4y^3z^2}+\frac{1}{x^5y^4z^3}$	$2492\colon \left(\frac{xyz^2+(y+z)^4}{xy^2z^2}, \frac{x^2yz^2}{xyz^2+(y+z)^4}, \frac{y^2}{xz}\right)$ $3211\colon \left(x, \frac{(y+z)^2}{xyz^2}, \frac{z^3}{(y+z)^2}\right)$

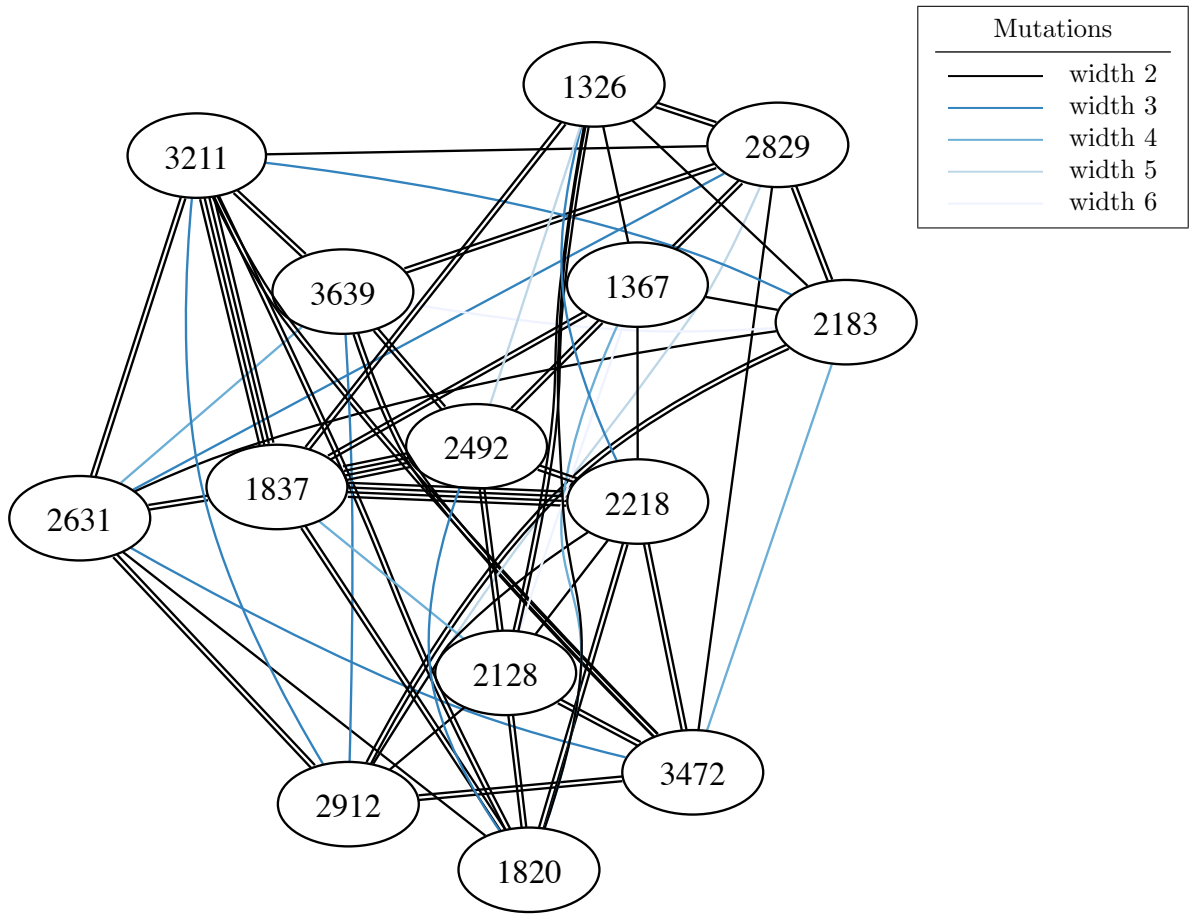

Figure 138b. All mutations between Minkowski polynomials in bucket 138

Bucket 139

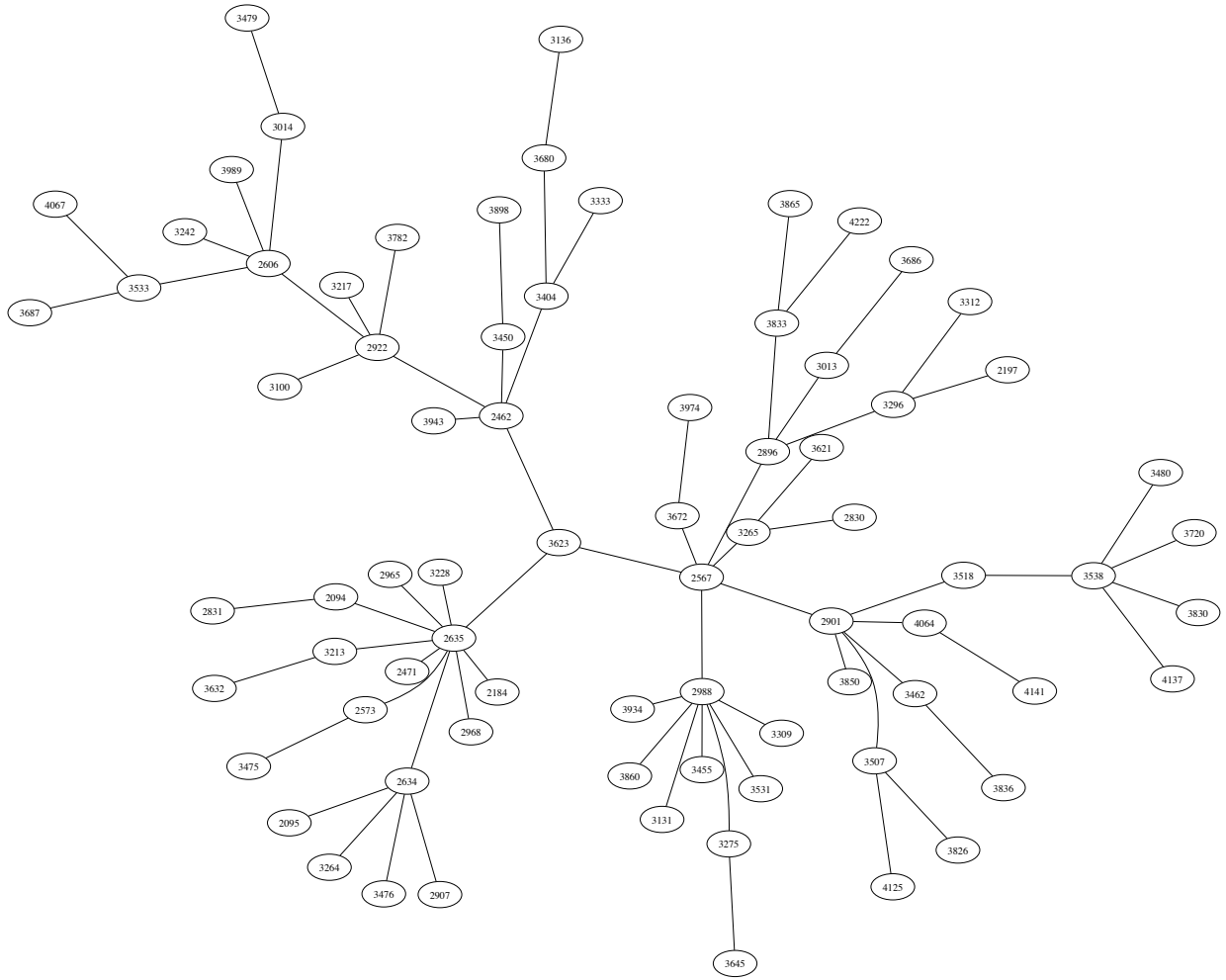

Figure 139a. Selected width-2 mutations between Minkowski polynomials in bucket 139

Table 139. Laurent polynomials and selected mutations for bucket 139.

Node	Laurent polynomial	Mutations from Figure 139a
2094	$x+\frac{x}{z}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{3}{x}+\frac{3}{xyz}+\frac{1}{xy^2z^2}$	2635: $\left(\frac{x(yz+1)}{yz}, y, z\right)$ 2831: $\left(y, \frac{(yz+1)^2}{x}, \frac{xyz}{(yz+1)^2}\right)$
2095	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	2634: $\left(x+y, z, \frac{yz}{x}\right)$
2184	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+yz+y+z+\frac{2}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2635: $\left(\frac{yz+1}{z}, \frac{yz+1}{yz^2}, x\right)$
2197	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{3z}{x^2}+\frac{z}{x^3}$	3296: $\left(y, z, \frac{y(z+1)}{x}\right)$
2462	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{3z}{x}+\frac{2}{x}+\frac{yz^2}{x^2}$	2922: $\left(x, y+z, \frac{xz}{y(y+z)}\right)$ 3404: $\left(y, \frac{xyz+(x+z)^2}{x^2z}, \frac{xyz^2}{xyz+(x+z)^2}\right)$ 3450: $\left(x, \frac{y^2}{y+z}, \frac{y+z}{yz}\right)$ 3623: $\left(\frac{(y^2+yz+z)(z+(y+z)^2)}{xy^2z}, \frac{(y^2+yz+z)(z+(y+z)^2)}{xy^2z^2}, y\right)$ 3943: $\left(y, \frac{(xz+y)(xy^2z+(xz+y)^2)}{x^2y^2z}, \frac{x^3y^2z^2}{(xz+y)(xy^2z+(xz+y)^2)}\right)$
2471	$x+\frac{x}{y}+\frac{x}{y^2z}+2yz+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2635: $\left(\frac{(yz+1)^2}{yz^2}, \frac{(yz+1)^2}{xyz}, \frac{xy^2z^2}{(yz+1)^2}\right)$
2567	$x+\frac{x}{z}+\frac{xz}{y}+\frac{2x}{y}+\frac{xz}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2896: $\left(y, x, \frac{xyz}{xy+x+y}\right)$ 2901: $\left(z, \frac{xz}{z+1}, \frac{yz}{z+1}\right)$ 2988: $\left(x, y, \frac{yz}{x+y}\right)$ 3265: $\left(x, z, \frac{x+1}{y}\right)$ 3623: $\left(\frac{xyz}{y^2+yz+z}, \frac{xy^2}{y^2+yz+z}, y\right)$ 3672: $\left(y, z, \frac{xyz^2}{(y+z)(yz+y+z)}\right)$
2573	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{3}{x}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	2635: $\left(\frac{x(yz+1)}{yz}, z(yz+1), \frac{yz+1}{y}\right)$ 3475: $\left(\frac{xyz}{yz+y+z}, y, z\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
2606	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	2922: $\left(\frac{x}{y}, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 3014: $\left(y, \frac{y}{z}, \frac{y(z+1)}{xz}\right)$ 3242: $\left(y, z, \frac{(y+z)^2}{xy}\right)$ 3533: $\left(z, \frac{yz}{x}, \frac{(z+1)(x+y)}{x^2}\right)$ 3989: $\left(y, \frac{y}{z}, \frac{xy^2}{(y+z)^2}\right)$
2634	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2095: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, y\right)$ 2635: $\left(\frac{yz+1}{z}, \frac{yz+1}{yz^2}, \frac{yz+1}{x}\right)$ 2907: $\left(y, z, \frac{(y+z)(yz+y+z)}{xyz}\right)$ 3264: $\left(\frac{xz}{z+1}, \frac{yz}{z+1}, z\right)$ 3476: $\left(\frac{xy^2}{(y+1)(y+z)}, \frac{xyz}{(y+1)(y+z)}, y\right)$
2635	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	2094: $\left(\frac{xyz}{yz+1}, y, z\right)$ 2184: $\left(z, \frac{x^2}{x+y}, \frac{x+y}{xy}\right)$ 2471: $\left(\frac{(yz+1)^2}{y^2z}, \frac{xy^2z^2}{(yz+1)^2}, \frac{(yz+1)^2}{xyz}\right)$ 2573: $\left(\frac{xy}{y+z}, \frac{y+z}{z^2}, \frac{yz}{y+z}\right)$ 2634: $\left(\frac{x+y}{yz}, \frac{x^2}{x+y}, \frac{x+y}{xy}\right)$ 2965: $\left(y, \frac{x+z}{z^2}, \frac{xz}{x+z}\right)$ 2968: $\left(\frac{yz}{z+1}, x, z\right)$ 3213: $\left(y, \frac{(y+z)^2}{xz^2}, \frac{xyz}{(y+z)^2}\right)$ 3228: $\left(\frac{xyz^2}{(z+1)(yz+1)}, y, z\right)$ 3623: $\left(y, \frac{(z+1)(y^2+yz+z)}{xy^2}, \frac{y}{z}\right)$
2830	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{2}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{1}{xy^2}$	3265: $\left(\frac{y(x+1)}{x}, x, \frac{xz}{x+1}\right)$
2831	$x+2yz+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2094: $\left(\frac{(yz+1)^2}{y}, x, \frac{yz}{x}\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
2896	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}$	2567: $\left(y, x, \frac{z(xy+x+y)}{xy}\right)$ 3013: $\left(y, x, \frac{x+1}{z}\right)$ 3296: $\left(\frac{xy+yz+z}{xz}, y, \frac{x}{z}\right)$ 3833: $\left(\frac{(yz+y+1)^2}{xyz}, y, z\right)$
2901	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	2567: $\left(\frac{y(x+1)}{x}, \frac{z(x+1)}{x}, x\right)$ 3462: $\left(x, \frac{xy}{x+z+1}, z\right)$ 3507: $\left(x, \frac{z(y+1)}{y}, y\right)$ 3518: $\left(x, \frac{xy}{x+1}, z\right)$ 3850: $\left(x, \frac{(y+1)^2}{yz}, y\right)$ 4064: $\left(y, \frac{(z+1)^3}{xz^2}, z\right)$
2907	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	2634: $\left(\frac{(x+y)(xy+x+y)}{xyz}, x, y\right)$
2922	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{2}{x}+\frac{y^3}{x^2z^2}+\frac{y^2}{x^2z}$	2462: $\left(x, \frac{xy}{x+yz}, \frac{y^2z}{x+yz}\right)$ 2606: $\left(\frac{x(y+z)}{yz}, \frac{y+z}{yz}, \frac{y+z}{y^2}\right)$ 3100: $\left(\frac{x^2z}{xz+x+yz}, z, \frac{xz+x+yz}{xy}\right)$ 3217: $\left(\frac{x^2}{x+z}, \frac{x}{y}, \frac{x+z}{yz}\right)$ 3782: $\left(\frac{x^3yz^2}{(xz+y)(xyz+xz+y^2)}, y, \frac{(xz+y)(xyz+xz+y^2)}{x^2yz}\right)$
2965	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	2635: $\left(z(yz+1), x, \frac{yz+1}{y}\right)$
2968	$xz^2+2xz+x+\frac{xz}{y}+\frac{x}{y}+y+2z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{xz}+\frac{1}{x}+\frac{1}{xz}+\frac{1}{xz^2}+\frac{1}{xyz}+\frac{1}{xyz^2}$	2635: $\left(y, \frac{x(z+1)}{z}, z\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
2988	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2567: $\left(x, y, \frac{z(x+y)}{y}\right)$ 3131: $\left(\frac{xyz}{x+yz}, \frac{x^2}{x+yz}, y\right)$ 3275: $\left(\frac{xz+x+y}{xy}, \frac{xz+x+y}{x^2}, z\right)$ 3309: $\left(\frac{yz}{x}, \frac{xz+x+yz}{x^2}, z\right)$ 3455: $\left(\frac{xyz}{x+yz}, \frac{y^2z}{x+yz}, z\right)$ 3531: $\left(z, \frac{xz}{z+1}, y\right)$ 3860: $\left(z, \frac{(y+z+1)^2}{xy}, y\right)$ 3934: $\left(\frac{(xz+y+1)(xz+y^2+y)}{x^2yz}, \frac{(xz+y+1)(xz+y^2+y)}{xy^2}, y\right)$
3013	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2896: $\left(y, x, \frac{y+1}{z}\right)$ 3686: $\left(\frac{(yz+y+z)(y^2+yz+z)}{xy^2z}, \frac{(yz+y+z)(y^2+yz+z)}{xyz^2}, \frac{(yz+y+z)(y^2+yz+z)}{xy^3z}\right)$
3014	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{z}{xy}$	2606: $\left(x, \frac{x+y}{z}, \frac{x}{y}\right)$ 3479: $\left(\frac{(y+z+1)^2}{xy}, \frac{(y+z+1)^2}{xz}, \frac{(y+z+1)^2}{xyz}\right)$
3100	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{y^2z}{x^3}$	2922: $\left(\frac{xyz+xz+y^2}{yz}, \frac{xyz+xz+y^2}{xz^2}, y\right)$
3131	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	2988: $\left(x+y, z, \frac{x(x+y)}{yz}\right)$
3136	$x+\frac{x}{yz}+yz+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	3680: $\left(y, \frac{xy^2z}{yz+x(y+1)^2}, \frac{x}{z}\right)$
3213	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	2635: $\left(\frac{(yz+1)^2}{y}, x, \frac{x}{yz}\right)$ 3632: $\left(x, \frac{(yz+1)^2}{y^2z}, \frac{(yz+1)^2}{y^3z^2}\right)$
3217	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	2922: $\left(\frac{xz+y}{z}, \frac{xz+y}{yz}, \frac{y(xz+y)}{xz^2}\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
3228	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{xy^2z^3}$	2635: $\left(\frac{x(z+1)(yz+1)}{yz^2}, y, z\right)$
3242	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	2606: $\left(\frac{(x+y)^2}{xz}, x, y\right)$
3264	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2634: $\left(\frac{x(z+1)}{z}, \frac{y(z+1)}{z}, z\right)$
3265	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}+\frac{z}{x^2}$	2567: $\left(x, \frac{x+1}{z}, y\right)$ 2830: $\left(y, \frac{xy}{y+1}, \frac{z(y+1)}{y}\right)$ 3621: $\left(y, \frac{(y+1)^2}{yz}, \frac{xy^2}{(y+1)^2}\right)$
3275	$x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2988: $\left(\frac{xz+x+y}{xy}, \frac{xz+x+y}{x^2}, z\right)$ 3645: $\left(x, y, \frac{(xy+x+y)^2}{xy^2z}\right)$
3296	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	2197: $\left(\frac{x(y+1)}{z}, x, y\right)$ 2896: $\left(\frac{yz+y+1}{x}, y, \frac{yz+y+1}{xz}\right)$ 3312: $\left(\frac{z(y+1)^2}{xy}, y, z\right)$
3309	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{yz}{x^2}$	2988: $\left(\frac{x+z+1}{y}, z, \frac{x(x+z+1)}{yz}\right)$
3312	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	3296: $\left(\frac{xy}{y+1}, y, z\right)$
3333	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{2x}{y^2z^2}+y+z+\frac{3}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{3z}{x}+\frac{2}{x}+\frac{6}{xy}+\frac{3}{xy^2z}+\frac{3z}{x^2}+\frac{3}{x^2y}+\frac{z}{x^3}$	3404: $\left(x, \frac{xyz+x+yz}{xz}, \frac{xyz^2}{xyz+x+yz}\right)$
3404	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{2x}{y^2z^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{z}{x^2}$	2462: $\left(\frac{x^2yz+(x+yz)^2}{xy^2z}, x, \frac{x^2yz+(x+yz)^2}{x^2y}\right)$ 3333: $\left(x, \frac{xy^2z}{xyz+x+yz}, \frac{xyz+x+yz}{xy}\right)$ 3680: $\left(x, \frac{y^2z}{x+yz}, \frac{x+yz}{y}\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
3450	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{1}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{3z}{y^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	2462: $\left(x,\frac{yz+1}{z},\frac{yz+1}{yz^2}\right)$ 3898: $\left(\frac{(xyz+xz+y)(xy^2z+(xz+y)^2)}{x^2y^3z},y,\frac{x^3y^3z^2}{(xyz+xz+y)(xy^2z+(xz+y)^2)}\right)$
3455	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2988: $\left(\frac{x(x+yz)}{yz},\frac{x+yz}{z},z\right)$
3462	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2901: $\left(x,\frac{y(x+z+1)}{x},z\right)$ 3836: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2},y,z\right)$
3475	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	2573: $\left(\frac{x(yz+y+z)}{yz},y,z\right)$
3476	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{6}{x}+\frac{4}{xz}+\frac{4z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	2634: $\left(\frac{(z+1)(x+y)}{z},z,\frac{yz}{x}\right)$
3479	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3014: $\left(\frac{(x+y+z)^2}{xyz},\frac{y}{z},\frac{x}{z}\right)$
3480	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3538: $\left(x,\frac{xz+y+z}{yz},\frac{y}{z}\right)$
3507	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{2z}{x^2}+\frac{z}{x^2y}$	2901: $\left(x,z,\frac{yz}{z+1}\right)$ 3826: $\left(x,\frac{xyz}{xz+x+z},z\right)$ 4125: $\left(y,\frac{(y+z)(y+z(y+1)^2)}{xy^2z},z\right)$
3518	$x+\frac{x}{z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2901: $\left(x,\frac{y(x+1)}{x},z\right)$ 3538: $\left(x,\frac{y+1}{z},y\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
3531	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	2988: $\left(\frac{y(x+1)}{x}, z, x\right)$
3533	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	2606: $\left(\frac{(x+1)(x+y)}{xz}, \frac{y(x+1)(x+y)}{x^2z}, x\right)$ 3687: $\left(x, \frac{xy+y+z}{yz}, \frac{xy^2}{xy+y+z}\right)$ 4067: $\left(x, \frac{(z+1)(xz+z+1)}{yz}, \frac{xyz^2}{(z+1)(xz+z+1)}\right)$
3538	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	3480: $\left(x, \frac{x+z+1}{y}, \frac{x+z+1}{yz}\right)$ 3518: $\left(x, z, \frac{z+1}{y}\right)$ 3720: $\left(y, \frac{xyz}{x+yz}, \frac{x^2}{x+yz}\right)$ 3830: $\left(y, \frac{xyz}{x+yz+z}, \frac{yz^2}{x+yz+z}\right)$ 4137: $\left(y, \frac{xyz}{(z+1)(y+z+1)}, \frac{xy}{(z+1)(y+z+1)}\right)$
3621	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{2z}{xy}+\frac{6}{xy}+\frac{2}{xy^2}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{3z}{x^2y}+\frac{z}{x^2y^2}$	3265: $\left(\frac{z(x+1)^2}{x^2}, x, \frac{(x+1)^2}{xy}\right)$
3623	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2462: $\left(\frac{(xz+x+yz^2)(xy+(x+yz)^2)}{x^2y^2z^2}, z, \frac{x}{y}\right)$ 2567: $\left(\frac{xz+x+yz}{z}, z, \frac{xz}{y}\right)$ 2635: $\left(\frac{(x+z)(xz+x+1)}{xyz^2}, x, \frac{x}{z}\right)$
3632	$x+2yz+y+z+\frac{3}{y}+\frac{1}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{yz^2}{x}+\frac{4yz}{x}+\frac{5z}{x}+\frac{6}{x}+\frac{10}{xy}+\frac{4}{xyz}+\frac{10}{xy^2z}+\frac{1}{xy^2z^2}+\frac{5}{xy^3z^2}+\frac{1}{xy^4z^3}$	3213: $\left(x, \frac{(y+z)^2}{y^2z}, \frac{y^3}{(y+z)^2}\right)$
3645	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{2}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3275: $\left(x, y, \frac{(xy+x+y)^2}{xy^2z}\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
3672	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{3}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	2567: $\left(\frac{z(x+y)(xy+x+y)}{xy^2}, x, y\right)$ 3974: $\left(\frac{(y+1)^2}{yz}, y, \frac{xy^2}{(y+1)^2}\right)$
3680	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{2x}{y^2z}+\frac{2x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{3}{xy}+\frac{z}{x^2}$	3136: $\left(\frac{y(x+z(x+1)^2)}{x^2}, x, \frac{y(x+z(x+1)^2)}{x^2z}\right)$ 3404: $\left(x, \frac{x+yz}{z}, \frac{yz^2}{x+yz}\right)$
3686	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{4}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	3013: $\left(\frac{(x+y+z)(x^2+xz+yz)}{x^2yz}, \frac{x}{z}, \frac{x^2}{yz}\right)$
3687	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{1}{x^2z}+\frac{3}{x^2y}+\frac{3z}{x^2y^2}+\frac{z^2}{x^2y^3}$	3533: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xyz+x+yz}{y^2z}\right)$
3720	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3538: $\left(y+z, x, \frac{y(y+z)}{xz}\right)$
3782	$x+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{2y^2}{xz}+\frac{4y}{x}+\frac{3y}{xz}+\frac{9}{x}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{y^3}{x^2z^2}+\frac{6y^2}{x^2z}+\frac{9y}{x^2z}+\frac{3}{x^2z}+\frac{4y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{y^4}{x^4z^3}$	2922: $\left(\frac{(xz+y)(xyz+xz+y^2)}{xyz^2}, y, \frac{x^2yz^3}{(xz+y)(xyz+xz+y^2)}\right)$
3826	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{2z}{x^2}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{z}{x^3y}$	3507: $\left(x, \frac{y(xz+x+z)}{xz}, z\right)$
3830	$x+\frac{x}{z}+\frac{2x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{5}{xy}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	3538: $\left(\frac{y(xz+y+z)}{xz}, x, \frac{xz+y+z}{x}\right)$
3833	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	2896: $\left(\frac{(yz+y+1)^2}{xyz}, y, z\right)$ 3865: $\left(x, y, \frac{y+1}{z}\right)$ 4222: $\left(x, z, \frac{xyz}{xz+(z+1)^2}\right)$
3836	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{10}{xy}+\frac{10}{xyz}+\frac{5}{xyz^2}+\frac{1}{xyz^3}$	3462: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2}, y, z\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
3850	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{4}{x}+\frac{5}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	2901: $\left(x, z, \frac{(z+1)^2}{yz}\right)$
3860	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	2988: $\left(\frac{(x+z+1)^2}{yz}, z, x\right)$
3865	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	3833: $\left(x, y, \frac{y+1}{z}\right)$
3898	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{4z}{y}+\frac{4}{y}+\frac{7z}{y^2}+\frac{4z}{y^3}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{8}{xy}+\frac{6}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}$	3450: $\left(\frac{(xyz+xz+y)(xy^2z+(xz+y)^2)}{x^2y^3z}, y, \frac{x^3y^3z^2}{(xyz+xz+y)(xy^2z+(xz+y)^2)}\right)$
3934	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{5}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{5}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2988: $\left(\frac{(xz+x+y)(xz+x+yz)}{x^2yz}, z, \frac{xy^2z^2}{(xz+x+y)(xz+x+yz)}\right)$
3943	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{3z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}+\frac{7}{x^2z}+\frac{3}{x^2yz}+\frac{3y}{x^3z^2}+\frac{3}{x^3z^2}+\frac{y}{x^4z^3}$	2462: $\left(\frac{(x+yz)(x^2yz+(x+yz)^2)}{x^2y^2z}, x, \frac{x^2y^3z^2}{(x+yz)(x^2yz+(x+yz)^2)}\right)$
3974	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{5z}{xy}+\frac{6}{xy}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{yz}{x^2}+\frac{4z}{x^2}+\frac{6z}{x^2y}+\frac{4z}{x^2y^2}+\frac{z}{x^2y^3}$	3672: $\left(\frac{z(y+1)^2}{y^2}, y, \frac{(y+1)^2}{xy}\right)$
3989	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2606: $\left(\frac{(x+1)(x+y)^2}{x^2z}, x, \frac{x}{y}\right)$
4064	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{9}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	2901: $\left(\frac{(z+1)^3}{yz^2}, x, z\right)$ 4141: $\left(\frac{y(z+1)}{z}, \frac{xz}{z+1}, z\right)$
4067	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	3533: $\left(x, \frac{(x+yz)(xyz+x+yz)}{xy^2z}, \frac{yz}{x}\right)$
4125	$x+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{9}{xy}+\frac{4}{xyz}+\frac{3z^2}{xy^2}+\frac{9z}{xy^2}+\frac{6}{xy^2}+\frac{3z^2}{xy^3}+\frac{4z}{xy^3}+\frac{z^2}{xy^4}$	3507: $\left(\frac{(x+z)(x+z(x+1)^2)}{x^2yz}, x, z\right)$

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Table 139 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 139a
4137	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{9}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3538: $\left(\frac{(y+z)(xz+y+z)}{xz}, x, \frac{y}{z}\right)$
4141	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{9}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{5z}{x^2y}+\frac{10}{x^2y}+\frac{10}{x^2yz}+\frac{5}{x^2yz^2}+\frac{1}{x^2yz^3}$	4064: $\left(\frac{y(z+1)}{z}, \frac{xz}{z+1}, z\right)$
4222	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{14}{xy}+\frac{16}{xyz}+\frac{9}{xyz^2}+\frac{2}{xyz^3}+\frac{z^2}{x^2y}+\frac{6z}{x^2y}+\frac{15}{x^2y}+\frac{20}{x^2yz}+\frac{15}{x^2yz^2}+\frac{6}{x^2yz^3}+\frac{1}{x^2yz^4}$	3833: $\left(x, \frac{z(xy+(y+1)^2)}{xy}, y\right)$

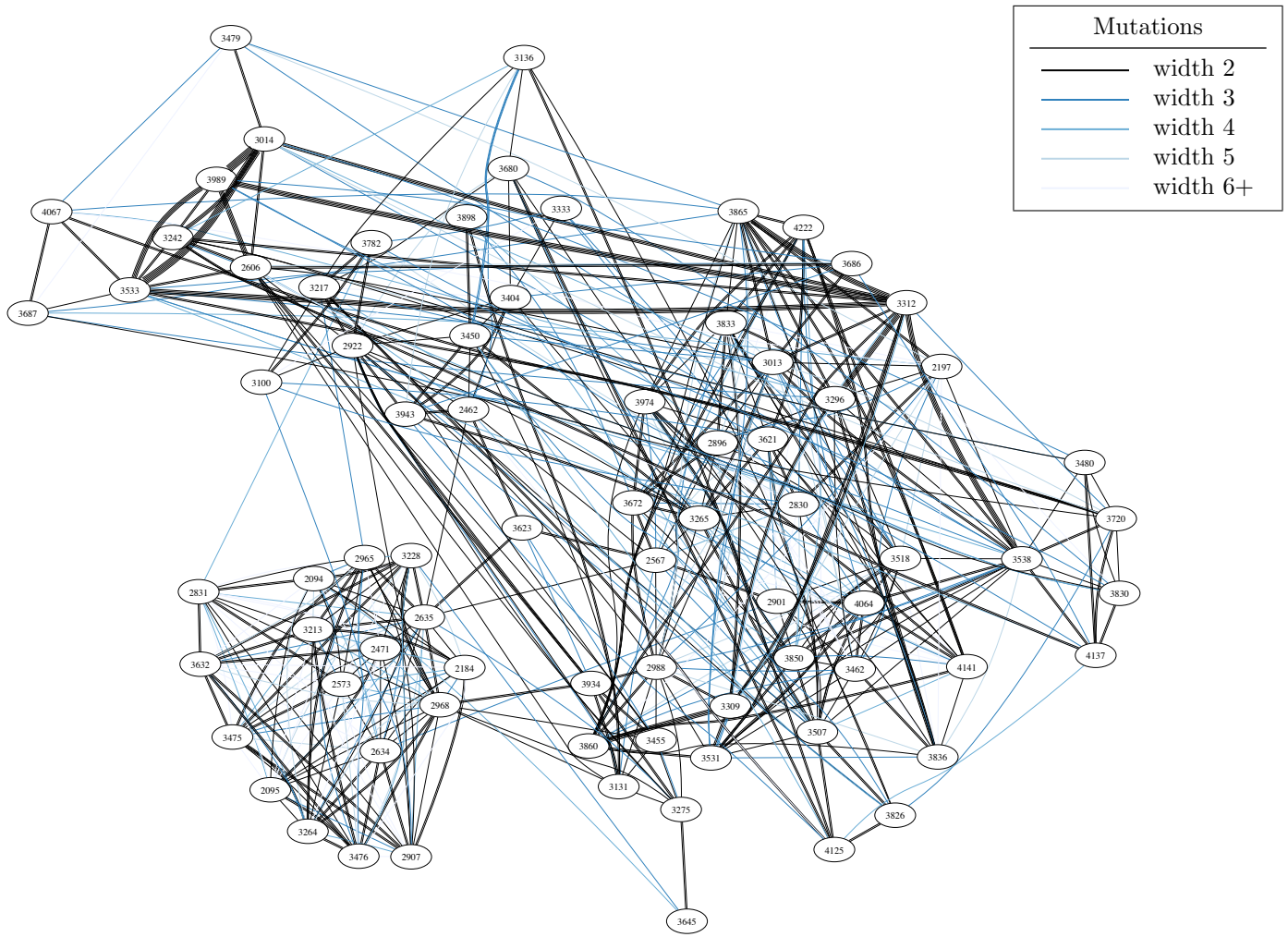

Figure 139b. All mutations between Minkowski polynomials in bucket 139

Bucket 140

Bucket 140 consists of a single Laurent polynomial:

$$f = xy^2 + 2xyz + 2xy + xz^2 + 2xz + x + \frac{2}{xz} + \frac{2}{xy} + \frac{2}{xyz} + \frac{1}{x^3y^2z^2}$$

The Newton polytope of f has reflexive ID 428.

Bucket 141

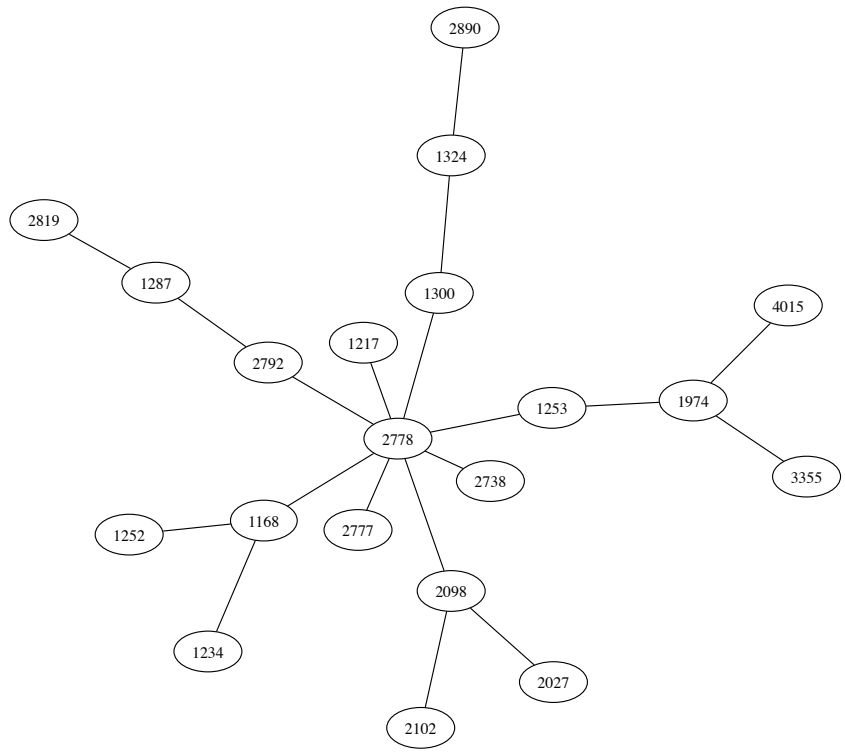

Figure 141a. Selected width-2 mutations between Minkowski polynomials in bucket 141

Table 141. Laurent polynomials and selected mutations for bucket 141.

Node	Laurent polynomial	Mutations from Figure 141a
1168	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1234: $\left(\frac{(x+z)^3}{x^2z^2}, y, \frac{x}{yz}\right)$ 1252: $\left(x, \frac{yz+1}{z}, \frac{1}{y(yz+1)}\right)$ 2778: $\left(\frac{(z+1)^2(xyz^2+(z+1)^2)}{xz^2}, \frac{(z+1)^2(xyz^2+(z+1)^2)}{x^2yz^3}, \frac{x^2yz^4}{(z+1)^2(xyz^2+(z+1)^2)}\right)$
1217	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	2778: $\left(\frac{(xyz+1)(xyz^2+(z+1)^2)}{x^2yz^3}, z, \frac{x^3y^2z^3}{(xyz+1)(xyz^2+(z+1)^2)}\right)$
1234	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{z}{x^2}$	1168: $\left(\frac{(yz+1)^3}{xyz}, y, \frac{(yz+1)^3}{xy^2z^2}\right)$
1252	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1168: $\left(x, \frac{y}{yz+1}, \frac{yz+1}{y^2z}\right)$
1253	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2}{x}+\frac{1}{xyz}$	1974: $\left(y, \frac{xz+y(xz+1)^2}{x^3yz^2}, xz\right)$ 2778: $\left(\frac{x^2yz^2}{xyz^2+(z+1)^2}, \frac{xyz^2+(z+1)^2}{x}, \frac{xz}{xyz^2+(z+1)^2}\right)$
1287	$xy^2+2xy+x+yz+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}+\frac{1}{x^2y^3z}$	2792: $\left(\frac{(xyz^2+z+1)(xyz^2+xyz+1)}{x^3y^2z^3}, xyz, \frac{x}{(xyz^2+z+1)(xyz^2+xyz+1)}\right)$ 2819: $\left(\frac{x^3y^2}{xyz+(xy+1)^2}, \frac{xyz+(xy+1)^2}{x^2y}, \frac{1}{x^2y^2z}\right)$
1300	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{y}{x^2}$	1324: $\left(\frac{x(y+z)}{y}, \frac{xz(y+z)}{y^2}, \frac{1}{z}\right)$ 2778: $\left(\frac{x^2yz^2}{(z+1)(xyz+1)}, \frac{x^2yz}{(z+1)(xyz+1)}, \frac{xz}{(z+1)(xyz+1)}\right)$
1324	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz^2}+\frac{2y}{xz}+\frac{1}{x}$	1300: $\left(\frac{x^2}{x+y}, \frac{x}{yz}, \frac{1}{z}\right)$ 2890: $\left(\frac{xz+(xz+y)^2}{x^3z^2}, \frac{1}{y}, \frac{x^2z}{xz+(xz+y)^2}\right)$
1974	$xz^2+2xz+x+y+4z+\frac{2z}{y}+\frac{2}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	1253: $\left(\frac{z+x(z+1)^2}{xyz^2}, x, \frac{xyz^3}{z+x(z+1)^2}\right)$ 3355: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)}{x}\right)$ 4015: $\left(\frac{x^3yz^2+(xz+1)^4}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^4}, \frac{x^4z^3}{x^3yz^2+(xz+1)^4}\right)$
2027	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{4}{x}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{4}{x^2z}+\frac{y}{x^3z}$	2098: $\left(x, y, \frac{z(x+y)}{x}\right)$

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Table 141 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 141a
2098	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2027: $\left(x, y, \frac{xz}{x+y}\right)$ 2102: $\left(x, y, \frac{z(x+y)}{x}\right)$ 2778: $\left(\frac{xz}{z+1}, \frac{x}{z+1}, yz(z+1)\right)$
2102	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{2}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{1}{xyz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	2098: $\left(x, y, \frac{xz}{x+y}\right)$
2738	$xz^2+2xz+x+\frac{xz^3}{y}+y+5z+\frac{6z^2}{y}+\frac{8}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{5}{x^2z}+\frac{20}{x^2y}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	2778: $\left(x, \frac{(z+1)^4}{x^2yz^3}, \frac{z}{x}\right)$
2777	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{8}{x}+\frac{5z}{xy}+\frac{z^2}{xy^2}+\frac{y^2}{x^2z^3}+\frac{5y}{x^2z^2}+\frac{10}{x^2z}+\frac{10}{x^2y}+\frac{5z}{x^2y^2}+\frac{z^2}{x^2y^3}$	2778: $\left(x, \frac{(z+1)^3}{x^2yz^3}, \frac{(z+1)^3}{x^2yz^2}\right)$
2778	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{5z}{x}+\frac{8}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	1168: $\left(\frac{(yz+1)^2(xz+(yz+1)^2)}{xy^2z^2}, \frac{x^2z}{(yz+1)^2(xz+(yz+1)^2)}, yz\right)$ 1217: $\left(\frac{(xyz+1)(xy^2z+(y+1)^2)}{x^2y^3z}, \frac{x^3y^5z^2}{(xyz+1)(xy^2z+(y+1)^2)}, \frac{1}{y}\right)$ 1253: $\left(\frac{xy+(yz+1)^2}{y}, \frac{x}{z^2(xy+(yz+1)^2)}, yz\right)$ 1300: $\left(\frac{(x+z)(x+y)}{x}, \frac{xy}{z(x+z)(x+y)}, \frac{x}{y}\right)$ 2098: $\left(x+y, \frac{y^2z}{x(x+y)}, \frac{x}{y}\right)$ 2738: $\left(x, \frac{(xz+1)^4}{x^5yz^3}, xz\right)$ 2777: $\left(x, \frac{(y+z)^3}{x^2yz^3}, \frac{z}{y}\right)$ 2792: $\left(x, \frac{xyz+1}{x^2y}, xyz\right)$
2792	$xy^2z^3+xy^2z^2+2xyz+x+3yz^2+5yz+y+\frac{3z}{x}+\frac{8}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{5}{x^2yz}+\frac{3}{x^2yz^2}+\frac{1}{x^3y^2z^2}+\frac{1}{x^3y^2z^3}$	1287: $\left(\frac{(xy^2z+y+1)(xy^2z+xyz+1)}{x^2y^3z}, \frac{x^3y^6z^2}{(xy^2z+y+1)(xy^2z+xyz+1)}, \frac{1}{xy^2z}\right)$ 2778: $\left(x, \frac{z+1}{x^2y}, \frac{xyz}{z+1}\right)$
2819	$xy^2+2xy+x+yz+4y+z+\frac{2z}{x}+\frac{6}{x}+\frac{3}{xy}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{1}{x^2yz}+\frac{1}{x^2y^2z}+\frac{2}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^4y^3z}$	1287: $\left(\frac{1+xyz(xy+1)^2}{x^2y^3z}, \frac{x^3y^4z}{1+xyz(xy+1)^2}, \frac{1}{x^2y^2z}\right)$
2890	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{7}{x}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{1}{x^2z}+\frac{y^2}{x^3z^2}$	1324: $\left(\frac{xy^2z+(xz+y)^2}{xy^2}, \frac{1}{y}, \frac{y^2}{z(xy^2z+(xz+y)^2)}\right)$

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Table 141 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 141a
3355	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{4y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	1974: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{y}{xz(xy+1)}\right)$
4015	$xz^2+2xz+x+y+4z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{8}{x}+\frac{2}{xz}+\frac{8z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{4}{x^2z}+\frac{13}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{8}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	1974: $\left(\frac{x^3yz^2+(xz+1)^4}{x^3z^2}, \frac{x^4yz^2}{x^3yz^2+(xz+1)^4}, \frac{x^4z^3}{x^3yz^2+(xz+1)^4}\right)$

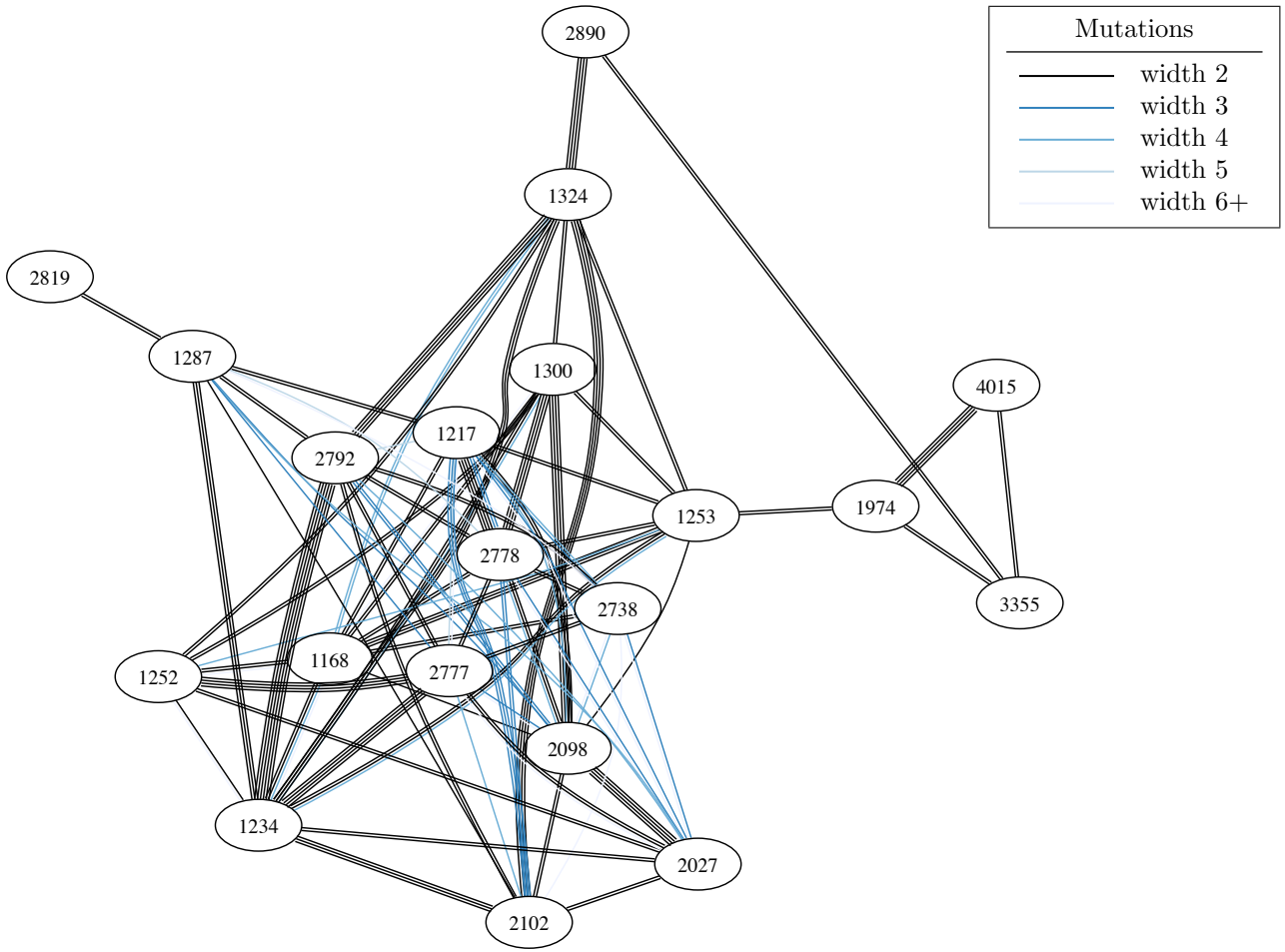

FIGURE 141B. All mutations between Minkowski polynomials in bucket 141

Bucket 142

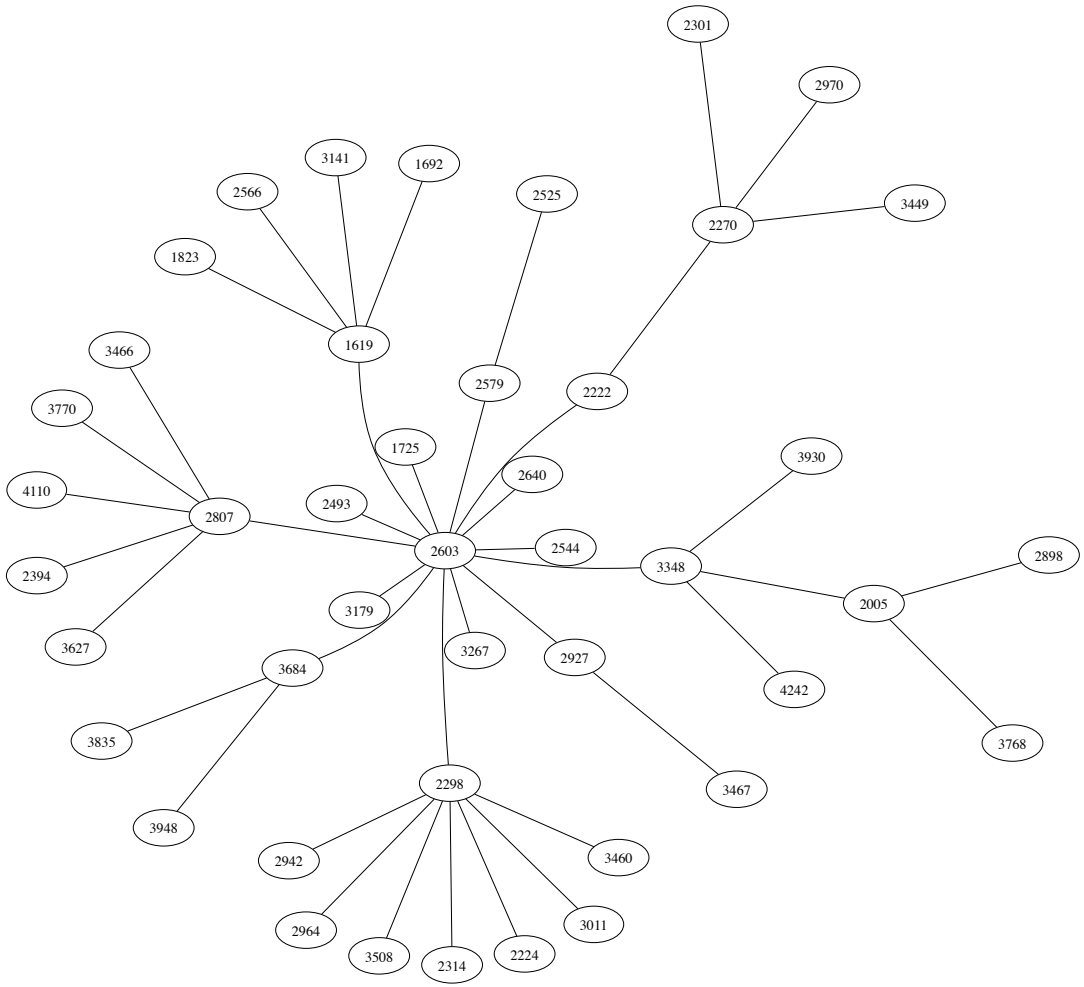

Figure 142a. Selected width-2 mutations between Minkowski polynomials in bucket 142

Table 142. Laurent polynomials and selected mutations for bucket 142.

Node	Laurent polynomial	Mutations from Figure 142a
1619	$x+\frac{x}{y}+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	1692: $\left(\frac{yz+(y+1)^2}{xy^2}, \frac{yz+(y+1)^2}{xy^2z}, \frac{xyz}{yz+(y+1)^2}\right)$ 1823: $\left(x+y, \frac{x+y}{xz}, \frac{yz}{x+y}\right)$ 2566: $\left(\frac{(x+y)(xyz+(x+y)^2)}{x^2y^2}, \frac{(x+y)(xyz+(x+y)^2)}{x^2y^2z}, \frac{xy^3z}{(x+y)(xyz+(x+y)^2)}\right)$ 2603: $\left(y(z+1)^2, x, \frac{1}{xz}\right)$ 3141: $\left(\frac{(xz+y)^2(xy^2z+(xz+y)^2)}{x^3y^2z^2}, \frac{(xz+y)^2(xy^2z+(xz+y)^2)}{x^3y^3z^2}, \frac{x^2y^4z}{(xz+y)^2(xy^2z+(xz+y)^2)}\right)$
1692	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	1619: $\left(\frac{xz+(yz+1)^2}{x}, \frac{1}{yz}, \frac{x}{y}\right)$
1725	$xyz+x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2603: $\left(\frac{(z+1)^2}{xz}, yz^2, \frac{1}{z}\right)$
1823	$xz+x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	1619: $\left(\frac{x}{yz+1}, \frac{xyz}{yz+1}, \frac{yz+1}{y}\right)$
2005	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2898: $\left(\frac{x+y+z}{yz}, \frac{x+y+z}{y^2}, \frac{y}{x}\right)$ 3348: $\left(y, \frac{x^3y^2z^2}{(xyz+xz+y)^2}, \frac{(xyz+xz+y)^2}{x^2y^2z}\right)$ 3768: $\left(\frac{x^2yz^2}{xyz^2+(z+1)^2}, \frac{xz^2}{xyz^2+(z+1)^2}, \frac{1}{z}\right)$
2222	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2270: $\left(\frac{yz+y+1}{xy}, \frac{yz+y+1}{xy^2}, \frac{yz+y+1}{xy^2z}\right)$ 2603: $(y(z+1), yz(z+1), x)$
2224	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{xz}+\frac{2}{x}+\frac{z}{xy}$	2298: $\left(x+z, \frac{x+z}{yz}, \frac{x(x+z)}{yz^2}\right)$
2270	$xy^2+2xy+x+yz+2y+z+\frac{2}{y}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	2222: $\left(\frac{xy+xz+yz}{x^2z}, \frac{x}{y}, \frac{y}{z}\right)$ 2301: $\left(\frac{x+y}{y^2}, \frac{xy}{x+y}, \frac{z}{y}\right)$ 2970: $\left(\frac{x^2z+xyz+y^2}{xy^2z}, \frac{x^2yz}{x^2z+xyz+y^2}, \frac{y}{xz}\right)$ 3449: $\left(\frac{(yz+1)(y^2z+yz+1)}{xy^2z^2}, \frac{xyz}{(yz+1)(y^2z+yz+1)}, y\right)$

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Table 142 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 142a
2298	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{yz^2}{x^2}$	2224: $\left(\frac{xz}{y+z}, \frac{y+z}{y^2}, \frac{xy}{y+z}\right)$ 2314: $\left(\frac{1}{z}, \frac{x+y}{y^2}, \frac{xy}{z(x+y)}\right)$ 2603: $\left(\frac{z+1}{xz}, y, \frac{z+1}{x}\right)$ 2942: $\left(\frac{1}{z}, \frac{(yz+1)^2}{xy^2z^2}, y\right)$ 2964: $\left(\frac{y^2z}{x+yz+y}, \frac{x+yz+y}{x^2}, \frac{xyz}{x+yz+y}\right)$ 3011: $\left(\frac{1}{z}, \frac{xz+x+yz}{y^2z}, \frac{xy}{xz+x+yz}\right)$ 3460: $\left(\frac{(y+z)(y+z+1)}{xy}, \frac{xz^2}{(y+z)(y+z+1)}, \frac{(y+z)(y+z+1)}{xz}\right)$ 3508: $\left(y, \frac{xz^2}{z+(y+z)^2}, \frac{z+(y+z)^2}{xz}\right)$
2301	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	2270: $\left(y(xy+1), \frac{xy+1}{x}, \frac{z(xy+1)}{x}\right)$
2314	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y}{x^2}$	2298: $\left(\frac{z(x+yz)}{x^2}, \frac{x+yz}{xy}, \frac{1}{x}\right)$
2394	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	2807: $\left(x+y, \frac{yz}{x+y}, \frac{xz}{x+y}\right)$
2493	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2603: $\left(\frac{(z+1)^2}{yz^2}, \frac{(z+1)^2}{xz}, \frac{x}{(z+1)^2}\right)$
2525	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2579: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, z\right)$
2544	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{z}{x^2}$	2603: $\left(z(yz+1), x, \frac{yz+1}{y}\right)$
2566	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	1619: $\left(\frac{(yz+1)(xz+(yz+1)^2)}{xy^2z^2}, \frac{(yz+1)(xz+(yz+1)^2)}{xyz}, \frac{x}{y}\right)$
2579	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}+\frac{1}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^2y^3z}$	2525: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, z\right)$ 2603: $\left(\frac{x+yz}{xy}, \frac{1}{z}, \frac{x^2}{x+yz}\right)$

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Table 142 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 142a
2603	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	1619: $\left(y, \frac{xy^2z^2}{(yz+1)^2}, \frac{1}{yz}\right)$ 1725: $\left(\frac{(z+1)^2}{xz}, yz^2, \frac{1}{z}\right)$ 2222: $\left(z, \frac{x^2}{x+y}, \frac{y}{x}\right)$ 2298: $\left(\frac{x+z}{xz}, y, \frac{z}{x}\right)$ 2493: $\left(\frac{(yz+1)^2}{y^2z}, \frac{(yz+1)^2}{x}, \frac{1}{yz}\right)$ 2544: $\left(y, \frac{x+z}{z^2}, \frac{xz}{x+z}\right)$ 2579: $\left(\frac{xyz+1}{xy}, \frac{xyz+1}{x^2y^3z}, y\right)$ 2640: $\left(\frac{x+y}{yz}, \frac{x+y}{y^2}, \frac{y}{x}\right)$ 2807: $\left(z, \frac{x^2z}{xz+x+yz}, \frac{xz+x+yz}{xyz}\right)$ 2927: $\left(y, \frac{x^2y}{(y+1)(x+z)}, \frac{z}{x}\right)$ 3179: $\left(y, \frac{(yz+1)^2}{xy^2z^2}, yz\right)$ 3267: $\left(\frac{(yz+1)(x+y)}{xy}, \frac{(yz+1)(x+y)}{y^3z}, \frac{y}{x}\right)$ 3348: $\left(y, \frac{(xz+1)(xyz+xz+y)}{xy}, \frac{x^2yz}{(xz+1)(xyz+xz+y)}\right)$ 3684: $\left(\frac{x}{1+y(z+1)^2}, \frac{xy}{1+y(z+1)^2}, z\right)$
2640	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	2603: $\left(\frac{z+1}{yz^2}, \frac{z+1}{yz}, \frac{z+1}{xz}\right)$
2807	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2394: $\left(\frac{xz}{y+z}, \frac{xy}{y+z}, y+z\right)$ 2603: $\left(\frac{xyz+x+yz}{xz}, \frac{xyz+x+yz}{xyz^2}, x\right)$ 3466: $\left(\frac{xyz}{yz+1}, \frac{y^2z}{yz+1}, \frac{yz+1}{y}\right)$ 3627: $\left(\frac{x^2yz}{(yz+1)(x+y)}, \frac{x^2}{(yz+1)(x+y)}, \frac{(yz+1)(x+y)}{xy}\right)$ 3770: $\left(\frac{xy^2z^2}{(yz+1)^2}, \frac{y^3z^2}{(yz+1)^2}, \frac{(yz+1)^2}{y^2z}\right)$ 4110: $\left(\frac{xy^2z^2+(y+z)^3}{xyz^2}, \frac{xy^2z^2+(y+z)^3}{xy^2z}, \frac{x^2y^2z^2}{xy^2z^2+(y+z)^3}\right)$
2898	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2005: $\left(\frac{z(xyz+x+y)}{x}, \frac{xyz+x+y}{xy}, \frac{xyz+x+y}{x^2}\right)$

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Table 142 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 142a
2927	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	2603: $\left(\frac{y(z+1)(x+1)}{x}, x, \frac{yz(z+1)(x+1)}{x}\right)$ 3467: $\left(\frac{xy^2z}{xyz+x+y}, \frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}\right)$
2942	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{3y}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z^2}$	2298: $\left(\frac{(x+z)^2}{yz^2}, z, \frac{1}{x}\right)$
2964	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	2298: $\left(\frac{x+yz^2+z}{yz}, \frac{x(x+yz^2+z)}{yz^2}, \frac{yz^2}{x}\right)$
2970	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{3y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2270: $\left(y(xy+z+1), \frac{xy+z+1}{x}, \frac{1}{xyz}\right)$
3011	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2298: $\left(\frac{x+yz^2+yz}{z}, \frac{x(x+yz^2+yz)}{yz^2}, \frac{1}{z}\right)$
3141	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{5z}{y}+\frac{4z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{8}{x}+\frac{6}{xy}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{4}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	1619: $\left(\frac{(yz+1)^2(xz+(yz+1)^2)}{xy^2z^2}, \frac{x}{y}, \frac{x^2z}{(yz+1)^2(xz+(yz+1)^2)}\right)$
3179	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{yz^2}{x}+\frac{4yz}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{6}{xy}+\frac{4}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	2603: $\left(\frac{(z+1)^2}{yz^2}, x, \frac{z}{x}\right)$
3267	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2603: $\left(\frac{(z+1)(x+yz)}{xyz^2}, \frac{(z+1)(x+yz)}{xyz}, \frac{x^2}{(z+1)(x+yz)}\right)$
3348	$xz^2+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+4z+\frac{6z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{6}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	2005: $\left(\frac{(xyz+x+yz)^2}{x^2yz^2}, x, \frac{x^2y^2z^3}{(xyz+x+yz)^2}\right)$ 2603: $\left(\frac{(yz+1)(xyz+x+yz)}{xy}, x, \frac{xy^2z}{(yz+1)(xyz+x+yz)}\right)$ 3930: $\left(\frac{x^2}{x+y+z}, \frac{x+y+z}{xy}, \frac{z(x+y+z)}{x^2y}\right)$ 4242: $\left(\frac{x^3y^2}{(xy+xz+1)^2}, \frac{(xy+xz+1)^2}{x^2y}, \frac{z(xy+xz+1)^2}{x^2y^2}\right)$
3449	$x+y^2z+3yz+y+z+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{3y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{1}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2270: $\left(\frac{(xy+1)(xy+z+1)}{x}, z, \frac{1}{xyz}\right)$
3460	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{8}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2298: $\left(\frac{(x+z)(xyz+x+yz^2)}{x^2z}, \frac{yz^2}{x}, yz\right)$

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Table 142 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 142a
3466	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	2807: $\left(\frac{x(yz+1)}{yz},\frac{yz+1}{z},\frac{yz^2}{yz+1}\right)$
3467	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{4}{y}+\frac{3}{yz}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	2927: $\left(\frac{xyz+x+z}{xy},\frac{xyz+x+z}{yz},\frac{xy^2z}{xyz+x+z}\right)$
3508	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{7}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}$	2298: $\left(\frac{yz+(x+yz)^2}{yz^2},x,yz\right)$
3627	$x+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{5yz}{x}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	2807: $\left(\frac{(yz+1)(x+y)}{yz},\frac{(yz+1)(x+y)}{y^2z^2},\frac{xyz^2}{(yz+1)(x+y)}\right)$
3684	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{z^2}{x}+\frac{5z}{x}+\frac{8}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2603: $\left(x+y(z+1)^2,\frac{y}{x},z\right)$ 3835: $\left(x,\frac{xy^3z}{(y+z)(xyz+(y+z)^2)},\frac{z}{y}\right)$ 3948: $\left(x,\frac{(xz+1)^2}{x^3yz^2},xz\right)$
3768	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{6z}{x}+\frac{8}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{2z}{x^2y}+\frac{7}{x^2y}+\frac{6}{x^2yz}+\frac{2}{x^2yz^2}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	2005: $\left(x+y(z+1)^2,\frac{x}{y(x+y(z+1)^2)},\frac{1}{z}\right)$
3770	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{5}{y}+\frac{4}{yz}+\frac{7}{y^2z}+\frac{3}{y^3z^2}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{6}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2807: $\left(\frac{x(yz+1)^2}{y^2z^2},\frac{(yz+1)^2}{yz^2},\frac{y^2z^3}{(yz+1)^2}\right)$
3835	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{8}{x}+\frac{3}{xz}+\frac{5z}{xy}+\frac{3}{xy}+\frac{z^2}{xy^2}+\frac{z}{xy^2}+\frac{y^2}{x^2z^3}+\frac{5y}{x^2z^2}+\frac{10}{x^2z}+\frac{10}{x^2y}+\frac{5z}{x^2y^2}+\frac{z^2}{x^2y^3}$	3684: $\left(x,\frac{y(z+1)(xz+(z+1)^2)}{xz},\frac{y(z+1)(xz+(z+1)^2)}{x}\right)$
3930	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{6y}{x}+\frac{4y}{xz}+\frac{6z}{x}+\frac{7}{x}+\frac{2z^2}{xy}+\frac{5z}{xy}+\frac{z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3348: $\left(\frac{xy+xz+1}{y},\frac{xy+xz+1}{xy^2},\frac{z(xy+xz+1)}{y^2}\right)$
3948	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{xz^2}{y}+y+5z+\frac{6z^2}{y}+\frac{4z}{y}+\frac{8}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{6}{xy}+\frac{5}{x^2z}+\frac{20}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{1}{x^3yz^2}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	3684: $\left(x,\frac{(z+1)^2}{xyz^2},\frac{z}{x}\right)$
4110	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{6y}{xz}+\frac{2y}{xz^2}+\frac{8}{x}+\frac{4}{xz}+\frac{4z}{xy}+\frac{2}{xy}+\frac{z^2}{xy^2}+\frac{2y^2}{x^2z^3}+\frac{9y}{x^2z^2}+\frac{13}{x^2z}+\frac{8}{x^2y}+\frac{2z}{x^2y^2}+\frac{y^2}{x^3z^4}+\frac{4y}{x^3z^3}+\frac{6}{x^3z^2}+\frac{4}{x^3yz}+\frac{1}{x^3y^2}$	2807: $\left(\frac{x^2y^2z+(x+y)^3}{x^2y^2},\frac{x^3y^2z}{x^2y^2z+(x+y)^3},\frac{x^2y^3z}{x^2y^2z+(x+y)^3}\right)$

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Table 142 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 142a
4242	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+6z+\frac{11z^2}{y}+\frac{6z}{y}+\frac{6z^3}{y^2}+\frac{8}{x}+\frac{2}{xz}+\frac{22z}{xy}+\frac{6}{xy}+\frac{15z^2}{xy^2}+\frac{4}{x^2z}+\frac{21}{x^2y}+\frac{2}{x^2yz}+\frac{20z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{10}{x^3yz}+\frac{15}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{6}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3348: $\left(\frac{(xy+xz+1)^2}{xy^2},\frac{x^2y^3}{(xy+xz+1)^2},\frac{x^2y^2z}{(xy+xz+1)^2}\right)$

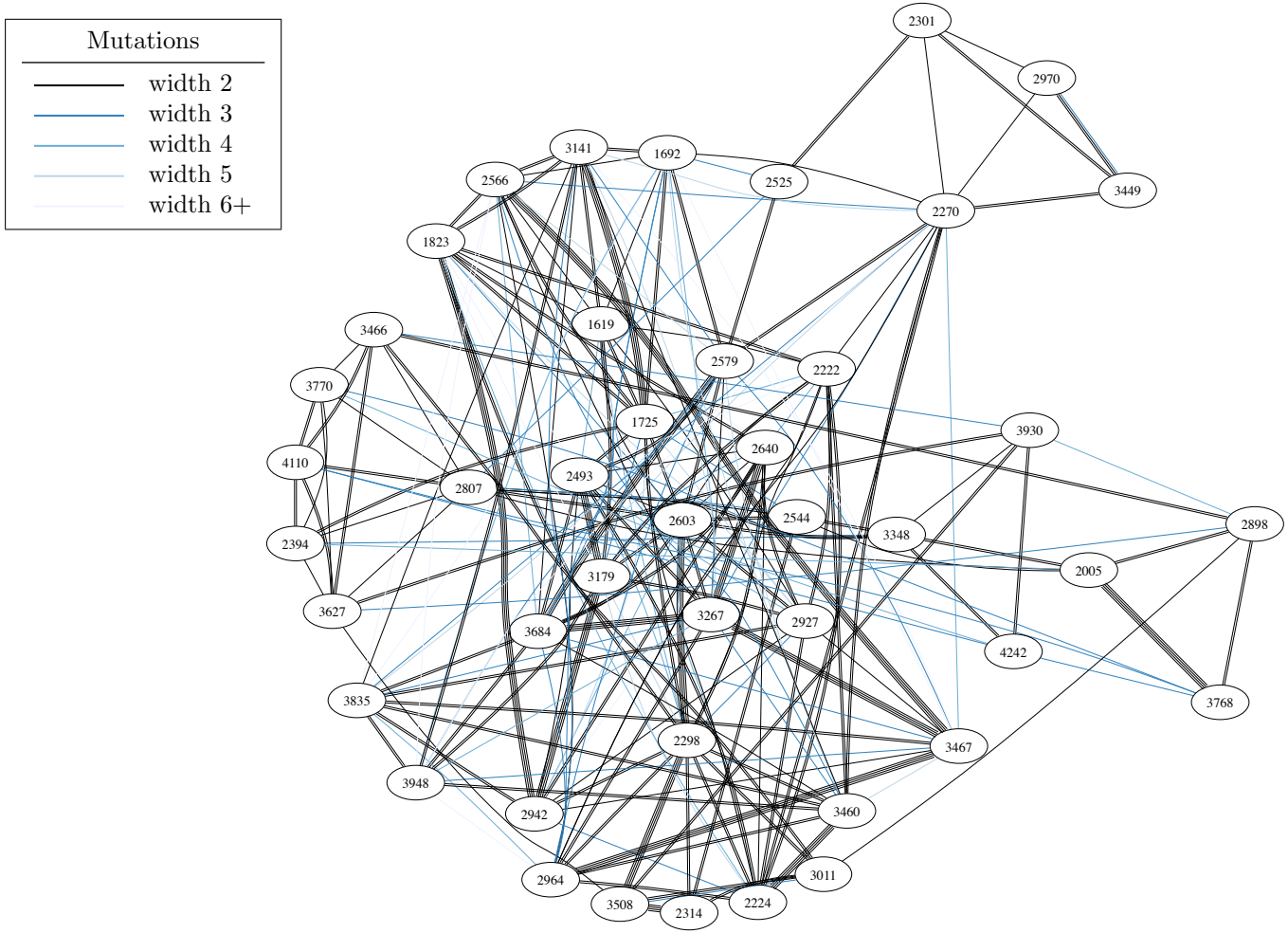

FIGURE 142B. All mutations between Minkowski polynomials in bucket 142

Bucket 143

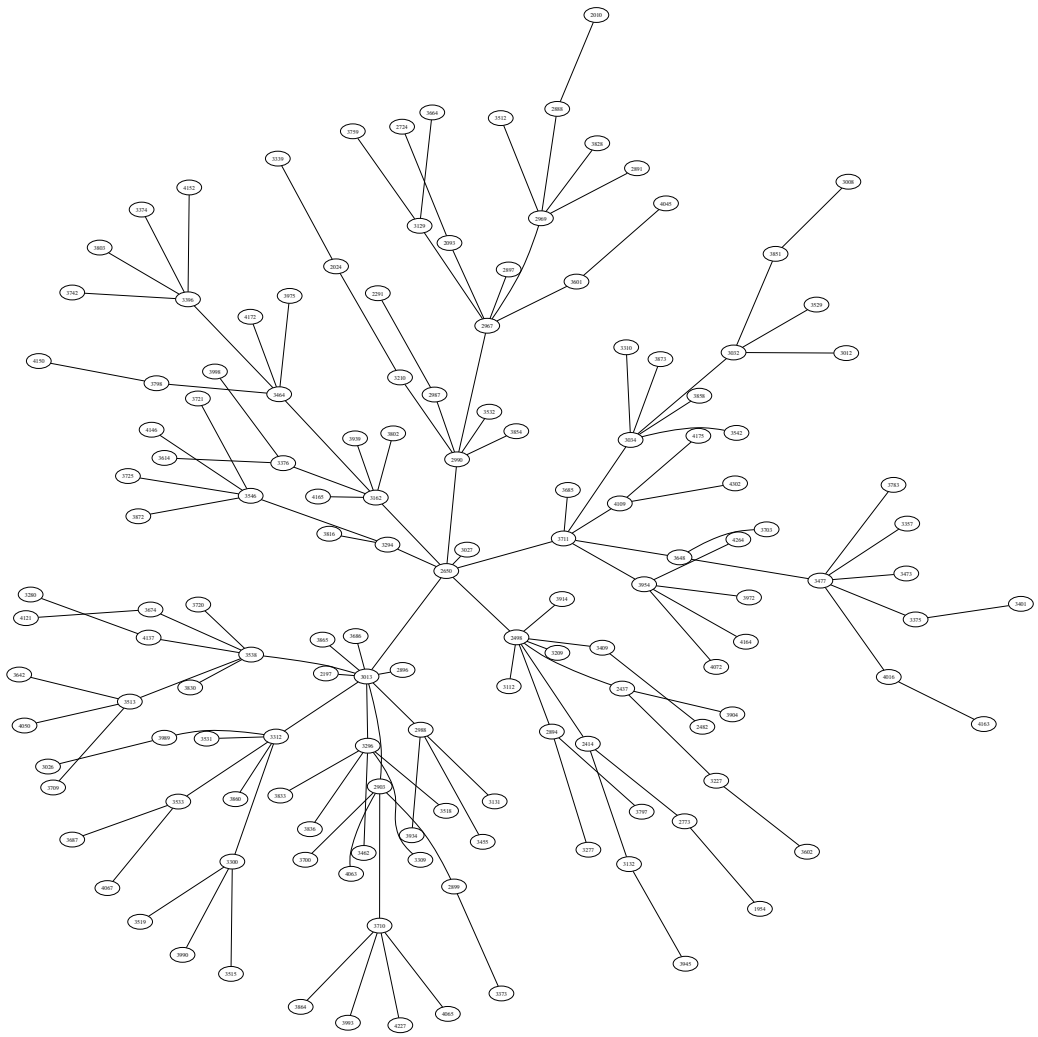

Figure 143a. Selected width-2 mutations between Minkowski polynomials in bucket 143

Table 143. Laurent polynomials and selected mutations for bucket 143.

Node	Laurent polynomial	Mutations from Figure 143a
1954	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{2}{xy^2z^2}+\frac{1}{x^2yz^2}$	2773: $\left(y, x+z, \frac{x}{z(x+z)}\right)$
2010	$xz^2+2xz+x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{1}{x^2yz^2}$	2888: $\left(x, \frac{y(xz+1)}{xz}, z\right)$
2024	$x+\frac{2x}{z}+\frac{x}{z^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	3210: $\left(\frac{xy}{x+1}, z, x\right)$ 3339: $\left(\frac{(xy^2+xyz+z)(x^2y^3+z(xy+1)^2)}{x^2yz^2}, \frac{(xy^2+xyz+z)(x^2y^3+z(xy+1)^2)}{x^4y^4z}, \frac{(xy^2+xyz+z)(x^2y^3+z(xy+1)^2)}{x^3y^3z}\right)$
2093	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2724: $\left(y, \frac{xz+y(xz+1)^2}{xy}, \frac{x^2yz}{xz+y(xz+1)^2}\right)$ 2967: $\left(\frac{xyz}{xz+1}, x, z\right)$
2197	$\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{3z}{x^2}+\frac{z}{x^3}$	3013: $\left(x, \frac{x}{z}, \frac{xy}{x+1}\right)$
2291	$xz+x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2987: $\left(\frac{y}{z+1}, \frac{xz}{z+1}, z\right)$
2414	$xy^2+2xy+x+2y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	2498: $\left(\frac{z(x^2+yz)}{x^2}, \frac{x}{yz}, x\right)$ 2773: $\left(\frac{x^2}{x+z}, \frac{x+z}{xz}, \frac{xy}{x+z}\right)$ 3132: $\left(\frac{x+y+z}{y^2}, \frac{xy}{x+y+z}, \frac{x+y+z}{xz}\right)$
2437	$xy^2+2xy+x+yz+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^4z^2}$	2498: $\left(\frac{x^2+yz}{y^2z}, \frac{y}{x}, \frac{x^3}{x^2+yz}\right)$ 3227: $\left(\frac{x^2z+xyz+y^2}{xy^2z}, \frac{x^2yz}{x^2z+xyz+y^2}, \frac{x^2z+xyz+y^2}{x^2y}\right)$ 3904: $\left(\frac{(x^2z^2+xyz+y)^2}{x^3y^2z^2}, \frac{x^4yz^3}{(x^2z^2+xyz+y)^2}, \frac{(x^2z^2+xyz+y)^2}{x^4z^3}\right)$
2482	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	3409: $\left(\frac{(x+y)(xyz+x+y^2z)}{x^2y}, \frac{(x+y)(xyz+x+y^2z)}{xy^3z}, \frac{(x+y)(xyz+x+y^2z)}{x^2y^2z}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
2498	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	2414: $\left(z, \frac{yz+1}{xy^2}, \frac{xyz}{yz+1}\right)$ 2437: $\left(\frac{xy^2z+1}{xy}, \frac{xy^2z+1}{xy^2}, \frac{xy^2z+1}{x^2y^2z}\right)$ 2650: $\left(\frac{xz+x+y}{xy}, \frac{xz+x+y}{y^2}, z\right)$ 2894: $\left(\frac{x+y}{yz}, \frac{x+y}{xz}, \frac{x+y}{y^2}\right)$ 3112: $\left(\frac{x^2}{xyz+x+y^2z}, \frac{x^2yz}{xyz+x+y^2z}, \frac{xy}{xyz+x+y^2z}\right)$ 3209: $\left(\frac{xy}{x+z}, \frac{x^2}{x+z}, \frac{yz}{x+z}\right)$ 3409: $\left(\frac{(x+y)(x+y^2z)}{x^2y}, \frac{(x+y)(x+y^2z)}{xy^2}, \frac{(x+y)(x+y^2z)}{x^2y^2z}\right)$ 3914: $\left(\frac{(z+1)^2(xyz^2+1)}{xz}, \frac{(z+1)^2(xyz^2+1)}{xz^2}, \frac{(z+1)^2(xyz^2+1)}{x^2yz^2}\right)$
2650	$xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{xz}{y^2}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{1}{x}+\frac{y^2}{x^2z}$	2498: $\left(\frac{x+yz+y}{x^2}, \frac{x+yz+y}{xy}, z\right)$ 2990: $\left(z, y, \frac{xy}{yz+y+z}\right)$ 3013: $\left(\frac{x+y}{yz}, \frac{x}{z}, \frac{x^2}{x+y}\right)$ 3027: $\left(y, \frac{x}{z}, \frac{x^2}{y(x+z)}\right)$ 3162: $\left(\frac{(yz+1)(yz+y+1)}{xy^2z^2}, \frac{(yz+1)(yz+y+1)}{xyz}, y\right)$ 3294: $\left(\frac{yz}{x}, z, \frac{x+y}{y^2}\right)$ 3711: $\left(z, y, \frac{(y+z)^2}{xz^2}\right)$
2724	$xz^2+2xz+x+y+4z+\frac{2z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	2093: $\left(\frac{yz+x(yz+1)^2}{xy}, x, \frac{xy^2z}{yz+x(yz+1)^2}\right)$
2773	$x+\frac{2x}{z}+\frac{x}{z^2}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{2z}{x}+\frac{3}{x}+\frac{2z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{z}{x^2}+\frac{2z^2}{x^2y}+\frac{z^3}{x^2y^2}$	1954: $\left(\frac{y^2z}{yz+1}, x, \frac{y}{yz+1}\right)$ 2414: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy+1}{xy^2}\right)$
2888	$xz^2+2xz+x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xyz}$	2010: $\left(x, \frac{1}{y(z+1)}, \frac{1}{xz}\right)$ 2969: $\left(y(xy+z), z, \frac{1}{xy}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
2891	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{y^2}{x^3z^2}$	2969: $\left(\frac{(xy+1)^2}{xy^2},\frac{1}{yz},\frac{x^2y^2}{z(xy+1)^2}\right)$
2894	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	2498: $\left(\frac{x(x+y)}{y^2z},\frac{x+y}{yz},\frac{x+y}{xy}\right)$ 3277: $\left(\frac{xy+x+yz}{xz},y,\frac{x}{z}\right)$ 3797: $\left(\frac{(yz+y+z)^2}{xyz},y,z\right)$
2896	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}$	3013: $\left(y,x,\frac{x+1}{z}\right)$
2897	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2967: $\left(z(xz+1),\frac{xz+1}{x},y\right)$
2899	$\frac{xy}{z}+x+y+\frac{3y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y}{x^2z}+\frac{1}{x^2z}$	2903: $\left(x,z,\frac{xz+z+1}{y}\right)$ 3373: $\left(y,\frac{(y^2+yz+z)^2}{xy^3z},\frac{(y^2+yz+z)^2}{xy^2z^2}\right)$
2903	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2899: $\left(x,\frac{xy+y+1}{z},y\right)$ 3013: $\left(\frac{yz+(x+z)^2}{xyz},\frac{yz+(x+z)^2}{x^2z},\frac{x}{z}\right)$ 3700: $\left(y,\frac{xy}{y+1},z\right)$ 3710: $\left(y,\frac{(x+z)(xy+x+z)}{x^2z},\frac{x}{z}\right)$ 4063: $\left(y,\frac{(z+1)^2(yz+z+1)}{xz^2},z\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
2967	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2093: $\left(y, \frac{x(yz+1)}{yz}, z\right)$ 2897: $\left(\frac{x+y}{y^2}, z, \frac{xy}{x+y}\right)$ 2969: $\left(xy^2, \frac{z(y+1)(xy+1)}{xy}, \frac{1}{y}\right)$ 2990: $\left(\frac{xz+y^2+yz}{xy^2}, \frac{x}{y}, \frac{y}{z}\right)$ 3129: $\left(\frac{x^2z}{xz+yz+y}, z, \frac{xz+yz+y}{xyz}\right)$ 3601: $\left(\frac{(y+z)(y^2+yz+z)}{xyz^2}, y, \frac{xy^2z}{(y+z)(y^2+yz+z)}\right)$
2969	$xy^2+2xy+x+yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	2888: $\left(\frac{x}{yz+1}, \frac{yz+1}{xz}, \frac{xyz}{yz+1}\right)$ 2891: $\left(\frac{x^3z^2}{(xz+y)^2}, \frac{(xz+y)^2}{x^2yz}, \frac{x^2z}{(xz+y)^2}\right)$ 2967: $\left(xz^2, \frac{1}{z}, \frac{xyz^2}{(z+1)(xz+1)}\right)$ 3512: $\left(\frac{x^3z}{(x+y)(xz+y)}, \frac{(x+y)(xz+y)}{x^2yz}, \frac{x^2y}{(x+y)(xz+y)}\right)$ 3828: $\left(\frac{x^4y^2z^3}{(xz+1)(xyz+1)^2}, \frac{(xz+1)(xyz+1)^2}{x^3yz^2}, \frac{x^3y^2z^2}{(xz+1)(xyz+1)^2}\right)$
2987	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{1}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	2291: $\left(\frac{y(z+1)}{z}, x(z+1), z\right)$ 2990: $\left(y+z, x, \frac{xz}{y(y+z)}\right)$
2988	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	3013: $\left(x, y, \frac{z(x+1)}{x}\right)$ 3131: $\left(\frac{xyz}{x+yz}, \frac{x^2}{x+yz}, y\right)$ 3455: $\left(\frac{xyz}{x+yz}, \frac{y^2z}{x+yz}, z\right)$ 3934: $\left(\frac{x^2yz}{(xz+1)(xz+y)}, \frac{x^3z^2}{(xz+1)(xz+y)}, y\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
2990	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}$	2650: $\left(\frac{z(xy+x+y)}{y}, y, x\right)$ 2967: $\left(\frac{yz+z+1}{xz^2}, \frac{yz+z+1}{xyz^2}, \frac{yz+z+1}{xyz}\right)$ 2987: $\left(y, \frac{xy}{xz+y}, \frac{x^2z}{xz+y}\right)$ 3210: $\left(y, \frac{xyz}{x+yz+z}, \frac{yz^2}{x+yz+z}\right)$ 3532: $\left(\frac{(x+y)(x+yz+y)}{xy^2}, \frac{(x+y)(x+yz+y)}{xy^2z}, \frac{(x+y)(x+yz+y)}{x^2yz}\right)$ 3854: $\left(\frac{(yz+1)^2(y^2z+yz+1)}{xy^2z^2}, \frac{(yz+1)^2(y^2z+yz+1)}{xy^3z^2}, \frac{(yz+1)^2(y^2z+yz+1)}{xy^2z}\right)$
3008	$xz^2+2xz+x+yz+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{1}{xyz}$	3851: $\left(\frac{x}{(yz+1)^2}, y, \frac{(yz+1)^2}{xyz}\right)$
3012	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	3032: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z(xy+1)}{xy}\right)$
3013	$\frac{x^2}{yz}+x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2197: $\left(x, \frac{z(x+1)}{x}, \frac{x}{y}\right)$ 2650: $\left(\frac{xz+y}{x}, \frac{y(xz+y)}{x^2z}, \frac{xz+y}{xy}\right)$ 2896: $\left(y, x, \frac{y+1}{z}\right)$ 2903: $\left(\frac{yz+x(z+1)^2}{xyz}, \frac{yz+x(z+1)^2}{x^2z}, \frac{yz+x(z+1)^2}{xyz^2}\right)$ 2988: $\left(x, y, \frac{xz}{x+1}\right)$ 3296: $\left(y, \frac{(z+1)(y+1)}{x}, \frac{y}{z}\right)$ 3312: $\left(y, \frac{y(x+z)}{xz}, \frac{yz}{x}\right)$ 3538: $\left(y, \frac{(y+z)^2}{xz}, z\right)$ 3686: $\left(\frac{xyz}{y^2+yz+z}, \frac{xy^2}{y^2+yz+z}, \frac{xz}{y^2+yz+z}\right)$ 3865: $\left(y, \frac{(y+1)(y+z)^2}{xyz}, z\right)$
3026	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	3989: $\left(y, \frac{xyz}{(z+1)(y+z+1)}, \frac{y}{z}\right)$
3027	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz^2}{x^2}+\frac{yz}{x^2}$	2650: $\left(\frac{xz(y+1)}{y}, \frac{z(y+1)}{y}, y\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3032	$xy^2+2xy+x+yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	3012: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{xz}{x+y}\right)$ 3034: $\left(\frac{y+z}{xy}, \frac{x}{z}, \frac{z}{y}\right)$ 3529: $\left(\frac{x+yz+y}{y^2}, \frac{xy}{x+yz+y}, \frac{x+yz+y}{xyz}\right)$ 3851: $\left(\frac{x}{(yz+1)(yz+z+1)}, \frac{(yz+1)(yz+z+1)}{xyz}, \frac{xz}{(yz+1)(yz+z+1)}\right)$
3034	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{z}{xy}$	3032: $\left(\frac{yz+1}{xyz}, \frac{yz+1}{xy}, \frac{yz+1}{xy^2z}\right)$ 3310: $\left(\frac{x^2}{x+z}, \frac{x}{y}, \frac{x}{z}\right)$ 3542: $\left(\frac{(x+y)(x+yz)}{xy^2}, \frac{(x+y)(x+yz)}{xy^2z}, \frac{(x+y)(x+yz)}{x^2y}\right)$ 3711: $\left(\frac{xy^2}{(y+1)(y+z)}, y, \frac{xyz}{(y+1)(y+z)}\right)$ 3858: $\left(\frac{(y+1)(yz+y+z)}{xy}, y, z\right)$ 3873: $\left(\frac{(y+1)(yz+1)^2}{xy^2z^2}, \frac{(y+1)(yz+1)^2}{xy^2z}, \frac{(y+1)(yz+1)^2}{xyz}\right)$
3112	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xyz}+\frac{y^3z^2}{x^2}+\frac{2y^2z}{x^2}+\frac{y}{x^2}$	2498: $\left(\frac{x^2+xy+yz}{x}, \frac{z(x^2+xy+yz)}{x^2}, \frac{xy}{z(x^2+xy+yz)}\right)$
3129	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	2967: $\left(\frac{xyz+y+1}{yz}, \frac{xyz+y+1}{xyz^2}, y\right)$ 3664: $\left(\frac{x^2}{x+z}, \frac{xy}{x+z}, \frac{x+z}{xz}\right)$ 3759: $\left(\frac{x^3z}{(x+y)(xz+1)}, \frac{x^2}{(x+y)(xz+1)}, \frac{(x+y)(xz+1)}{x^2yz}\right)$
3131	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	2988: $\left(x+y, z, \frac{x(x+y)}{yz}\right)$
3132	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	2414: $\left(\frac{xy^2z+yz+1}{z}, \frac{xy^2z+yz+1}{xyz}, \frac{xy^2z+yz+1}{xy^2z^2}\right)$ 3945: $\left(x, y, \frac{x^2y^2z}{(xy+x+y)^2}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3162	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	2650: $\left(\frac{(x+y)(xz+x+y)}{xy^2}, z, \frac{y}{xz}\right)$ 3376: $\left(\frac{xy^2z+y+1}{xy^2}, \frac{xy^2z+y+1}{x^2y^2z}, \frac{x^2y^3z}{xy^2z+y+1}\right)$ 3464: $\left(\frac{z(x+y)}{x}, \frac{x+y}{y^2}, \frac{xy}{x+y}\right)$ 3802: $\left(\frac{x^2z}{xz+yz+1}, \frac{x}{xz+yz+1}, \frac{xz+yz+1}{xyz}\right)$ 3939: $\left(\frac{(x+y)(x+y^2z+y)}{xy^2}, \frac{(x+y)(x+y^2z+y)}{x^2y^2z}, \frac{xy^3z}{(x+y)(x+y^2z+y)}\right)$ 4165: $\left(\frac{(z+1)^2(xyz+z+1)}{xz}, \frac{(z+1)^2(xyz+z+1)}{x^2yz^3}, \frac{x^2yz^2}{(z+1)^2(xyz+z+1)}\right)$
3209	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2498: $\left(\frac{y(x+z)}{x}, x+z, \frac{yz(x+z)}{x^2}\right)$
3210	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	2024: $\left(z, \frac{x(z+1)}{z}, y\right)$ 2990: $\left(\frac{y(xz+y+z)}{xz}, x, \frac{xz+y+z}{x}\right)$
3227	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2y^2}{x^2z}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{y^2}{x^3z}$	2437: $\left(\frac{x^2y^3z+xy^2z+1}{xyz}, \frac{x^2y^3z+xy^2z+1}{x^2y^2z}, yz\right)$ 3602: $\left(x, y, \frac{(xy+x+y)^2}{x^3z}\right)$
3277	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{z}{x^2}$	2894: $\left(\frac{yz+y+z}{x}, y, \frac{yz+y+z}{xz}\right)$
3280	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	4137: $\left(y, \frac{xy^2}{(y+1)(y+z+1)}, z\right)$
3294	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	2650: $\left(\frac{y(x+y)}{x^2z}, \frac{x+y}{xz}, y\right)$ 3546: $\left(\frac{x(y+z)}{yz}, x, \frac{y}{z}\right)$ 3816: $\left(y, z, \frac{(z+1)(y+z)^2}{xyz^2}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3296	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3013: $\left(\frac{(x+1)(x+z)}{yz}, x, \frac{x}{z}\right)$ 3309: $\left(\frac{x+yz}{z}, \frac{yz}{x}, \frac{x+yz}{xz}\right)$ 3462: $\left(y, z, \frac{xyz}{yz+(z+1)^2}\right)$ 3518: $\left(\frac{(z+1)(yz+z+1)}{xz}, z, \frac{(z+1)(yz+z+1)}{xyz}\right)$ 3833: $\left(\frac{(y+1)^2(yz+y+1)}{xy^2}, y, \frac{(y+1)^2(yz+y+1)}{xy^2z}\right)$ 3836: $\left(y, z, \frac{xyz^2}{(z+1)(yz+(z+1)^2)}\right)$
3300	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3312: $\left(\frac{xz+x+z}{yz}, \frac{xz+x+z}{xy}, x\right)$ 3515: $\left(y, z, \frac{xy}{y+z}\right)$ 3519: $\left(x, y, \frac{xz}{x+1}\right)$ 3990: $\left(y, z, \frac{(yz+y+z)^2}{xyz^2}\right)$
3309	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{yz}{x^2}$	3296: $\left(\frac{x}{z}, \frac{xy}{y+1}, \frac{y+1}{z}\right)$
3310	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3034: $\left(\frac{x(z+1)}{z}, \frac{x(z+1)}{yz}, \frac{x(z+1)}{z^2}\right)$
3312	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{1}{xy}$	3013: $\left(\frac{x(x+z)}{yz}, x, \frac{x}{z}\right)$ 3300: $\left(z, \frac{x+yz+y}{xy}, \frac{x}{y}\right)$ 3531: $\left(y, z, \frac{y+z+1}{x}\right)$ 3533: $\left(z, \frac{xyz}{x+yz}, \frac{x}{y}\right)$ 3860: $\left(y, z, \frac{xyz}{(z+1)(y+z+1)}\right)$ 3989: $\left(y, \frac{(y+z+1)(yz+y+z)}{xyz}, \frac{y}{z}\right)$
3339	$\frac{xy^4}{z^2}+\frac{2xy^3}{z}+xy^2+\frac{2xy^2}{z}+2xy+x+\frac{4y^2}{z}+5y+z+\frac{2y}{xz}+\frac{8}{x}+\frac{4z}{xy}+\frac{2}{xy}+\frac{5}{x^2y}+\frac{6z}{x^2y^2}+\frac{1}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z}{x^4y^4}$	2024: $\left(x+y+z, \frac{z}{y(x+y+z)}, \frac{z^3}{xy^2(x+y+z)}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3357	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{2xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{4xz^2}{y^3}+y+z+\frac{4z}{y}+\frac{6}{y}+\frac{6z}{y^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	3477: $\left(x, \frac{(yz+1)^2}{y}, \frac{(yz+1)^2}{xy^2z}\right)$
3373	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{3}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y^2}{xz^2}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{3z}{xy^3}+\frac{z}{xy^4}$	2899: $\left(\frac{(xy+xz+y)^2}{x^2y^2z}, x, \frac{xy}{z}\right)$
3374	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{4}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z^2}+\frac{3}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{2}{x^2y^2z^3}+\frac{1}{x^3y^2z^4}$	3396: $\left(\frac{xz+yz+1}{y}, \frac{xz+yz+1}{x^2z}, \frac{xyz}{xz+yz+1}\right)$
3375	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{4}{xyz^2}+\frac{2}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{1}{x^2yz^2}+\frac{2}{x^2y^2z^3}+\frac{1}{x^2y^3z^4}$	3401: $\left(\frac{xy+1}{x}, \frac{z^2(xy+1)}{y}, \frac{xy}{z(xy+1)}\right)$ 3477: $\left(x, \frac{xy^2z^3}{xyz+1}, \frac{xyz+1}{xyz^2}\right)$
3376	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{4}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3162: $\left(\frac{xyz^2+yz+1}{xy^2z^2}, yz, \frac{x^2yz^2}{xyz^2+yz+1}\right)$ 3614: $\left(\frac{x^2z+xyz+y^2}{xy^2z}, \frac{x^2yz}{x^2z+xyz+y^2}, z\right)$ 3998: $\left(\frac{(x^2yz^2+xyz+1)^2}{x^3y^2z^2}, \frac{x^4y^2z^3}{(x^2yz^2+xyz+1)^2}, y\right)$
3396	$x+\frac{xz}{y}+\frac{2x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{3}{x}+\frac{4}{xz}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3374: $\left(\frac{xyz^2+xz+1}{xyz}, \frac{xyz^2+xz+1}{x}, \frac{x^2yz^2}{xyz^2+xz+1}\right)$ 3464: $\left(y, \frac{x(yz+1)}{yz}, z\right)$ 3742: $\left(\frac{x^2yz}{xyz+x+y}, \frac{x^2}{xyz+x+y}, \frac{xyz+x+y}{xy}\right)$ 3803: $\left(\frac{xy}{y+z}, \frac{y^2}{y+z}, \frac{y+z}{yz}\right)$ 4152: $\left(\frac{x^3y^2z}{(xy+1)(xyz+xy+1)}, \frac{x^3y^2}{(xy+1)(xyz+xy+1)}, \frac{(xy+1)(xyz+xy+1)}{x^2y}\right)$
3401	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{z^2}{y}+\frac{2z}{y}+\frac{1}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	3375: $\left(\frac{xyz^2+1}{x}, \frac{x^2yz^2}{xyz^2+1}, \frac{xyz}{xyz^2+1}\right)$
3409	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{4}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xyz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	2482: $\left(\frac{(y+z)(xy+xz+yz)}{xyz^2}, \frac{(y+z)(xy+xz+yz)}{xy^2z}, \frac{x^2y^2}{(y+z)(xy+xz+yz)}\right)$ 2498: $\left(\frac{(x+y)(x^2+yz)}{xy^2z}, \frac{(x+y)(x^2+yz)}{x^2yz}, \frac{x^4}{(x+y)(x^2+yz)}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3455	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2988: $\left(\frac{x(x+yz)}{yz},\frac{x+yz}{z},z\right)$
3462	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3296: $\left(\frac{z(xy+(y+1)^2)}{xy},x,y\right)$
3464	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xyz}$	3162: $\left(z(yz+1),\frac{yz+1}{y},\frac{xyz}{yz+1}\right)$ 3396: $\left(\frac{xyz}{xz+1},x,z\right)$ 3798: $\left(\frac{xy^2}{(y+1)^2},y,z\right)$ 3975: $\left(\frac{xy^2z}{(y+1)(yz+1)},y,z\right)$ 4172: $\left(\frac{xy^3z}{(y+1)^2(yz+1)},y,z\right)$
3473	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z^2}{xy^2}+\frac{3z}{xy^2}+\frac{z^2}{xy^3}$	3477: $\left(x,\frac{yz+1}{z},\frac{yz+1}{yz^2}\right)$
3477	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	3357: $\left(x,\frac{(xz+y)^2}{x^2yz^2},\frac{xy^2z}{(xz+y)^2}\right)$ 3375: $\left(x,\frac{xy^2z^3}{xyz+1},\frac{xyz+1}{xyz^2}\right)$ 3473: $\left(x,\frac{y^2}{y+z},\frac{y+z}{yz}\right)$ 3648: $\left(\frac{x^2z}{xz+y^2+yz},\frac{xz+y^2+yz}{xz^2},\frac{z}{y}\right)$ 3783: $\left(x,\frac{xy^3}{(y+z)(xy+z)},\frac{(y+z)(xy+z)}{xy^2z}\right)$ 4016: $\left(y,\frac{x^4yz^3}{(xz+1)^2(xyz+1)},\frac{(xz+1)^2(xyz+1)}{x^3yz^2}\right)$
3512	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	2969: $\left(\frac{(x+z)(xy+1)}{xy},\frac{(x+z)(xy+1)}{x^2y^2},\frac{1}{yz}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3513	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3538: $\left(x, \frac{x+1}{y}, \frac{y}{z}\right)$ 3642: $\left(x, y, \frac{xz}{x+y+1}\right)$ 3709: $\left(x, z, \frac{yz}{z+1}\right)$ 4050: $\left(x, z, \frac{xyz}{(z+1)(x+z+1)}\right)$
3515	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3300: $\left(\frac{z(x+y)}{x}, x, y\right)$
3518	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3296: $\left(\frac{(y+1)(xy+yz+z)}{xyz}, \frac{x}{z}, y\right)$
3519	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{2}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3300: $\left(x, y, \frac{z(x+1)}{x}\right)$
3529	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3032: $\left(\frac{xy^2z+yz+1}{z}, \frac{xy^2z+yz+1}{xyz}, \frac{1}{yz}\right)$
3531	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3312: $\left(\frac{x+y+1}{z}, x, y\right)$
3532	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2990: $\left(\frac{(y+z)(xz+y^2+yz)}{xyz^2}, \frac{(y+z)(xz+y^2+yz)}{xy^2z}, \frac{x}{y}\right)$
3533	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3312: $\left(\frac{y(z+1)}{z}, \frac{y(z+1)}{x}, x\right)$ 3687: $\left(x, \frac{xy+y+z}{yz}, \frac{xy^2}{xy+y+z}\right)$ 4067: $\left(x, \frac{(z+1)(xz+z+1)}{yz}, \frac{xyz^2}{(z+1)(xz+z+1)}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3538	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	3013: $\left(\frac{(x+z)^2}{yz}, x, z\right)$ 3513: $\left(x, \frac{x+1}{y}, \frac{x+1}{yz}\right)$ 3674: $\left(x, \frac{xz+(z+1)^2}{yz}, \frac{xz+(z+1)^2}{yz^2}\right)$ 3720: $\left(y, \frac{xyz}{x+yz}, \frac{x^2}{x+yz}\right)$ 3830: $\left(y, \frac{xyz}{x+yz+z}, \frac{yz^2}{x+yz+z}\right)$ 4137: $\left(y, \frac{(y+1)(yz+(z+1)^2)}{xyz}, \frac{(y+1)(yz+(z+1)^2)}{xyz^2}\right)$
3542	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3034: $\left(\frac{(y+z)(x+z)}{xyz}, \frac{(y+z)(x+z)}{yz^2}, \frac{z}{y}\right)$
3546	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{z}{xy^2}$	3294: $\left(y, \frac{y(z+1)}{x}, \frac{y(z+1)}{xz}\right)$ 3721: $\left(y, x, \frac{x(y+1)}{yz}\right)$ 3725: $\left(y, z, \frac{xz}{z+1}\right)$ 3872: $\left(x, z, \frac{x+z+1}{y}\right)$ 4146: $\left(y, z, \frac{xyz^2}{(z+1)^2(y+1)}\right)$
3601	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{6z}{xy^2}+\frac{1}{xy^2}+\frac{2z^2}{xy^3}+\frac{2z}{xy^3}+\frac{z^2}{xy^4}$	2967: $\left(\frac{(xz+1)(xyz+y+1)}{xy}, y, \frac{y}{xz}\right)$ 4045: $\left(\frac{x^2}{x+y+z}, \frac{x+y+z}{xy}, \frac{z(x+y+z)}{xy^2}\right)$
3602	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{3y^2}{x^2z}+\frac{2y}{x^2}+\frac{6y}{x^2z}+\frac{3}{x^2z}+\frac{3y^2}{x^3z}+\frac{3y}{x^3z}+\frac{y^2}{x^4z}$	3227: $\left(x, y, \frac{(xy+x+y)^2}{x^3z}\right)$
3614	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{4y^2}{x^2z}+\frac{y}{x^2}+\frac{6y}{x^2z}+\frac{2y^3}{x^3z^2}+\frac{3y^2}{x^3z}+\frac{3y^2}{x^3z^2}+\frac{3y^3}{x^4z^2}+\frac{y^4}{x^5z^3}$	3376: $\left(\frac{x^2y^2z+xyz+1}{xz}, \frac{x^2y^2z+xyz+1}{x^2yz}, z\right)$
3642	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{y^2}{x^2z}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{1}{x^2yz}$	3513: $\left(x, y, \frac{z(x+y+1)}{x}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3648	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{4y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	3477: $\left(\frac{xyz^2+z+1}{yz^2}, \frac{xyz^2+z+1}{xy^2z^3}, \frac{xyz^2+z+1}{xy^2z^2}\right)$ 3703: $\left(\frac{(x+y)(xy+xz+yz)}{xy^2z}, \frac{(x+y)(xy+xz+yz)}{x^2y^2}, \frac{(x+y)(xy+xz+yz)}{x^3y}\right)$ 3711: $\left(x, \frac{xyz}{xz+y+z}, \frac{xz^2}{xz+y+z}\right)$
3664	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3129: $\left(\frac{xz+1}{z}, \frac{y(xz+1)}{xz}, \frac{xz+1}{xz^2}\right)$
3674	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{5}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3538: $\left(x, \frac{xyz+(y+z)^2}{y^2z}, \frac{y}{z}\right)$ 4121: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2}, y, z\right)$
3685	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{4z}{y}+\frac{3}{y}+\frac{4z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{3}{xz}+\frac{6}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{y}{x^3z^2}$	3711: $\left(x, \frac{(y+z)^2}{y^2z}, \frac{(y+z)^2}{xyz^2}\right)$
3686	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{5}{xy}+\frac{3z}{xy^2}+\frac{1}{xy^2}+\frac{z}{xy^3}$	3013: $\left(x+y+z, \frac{x}{z}, \frac{x^2}{yz}\right)$
3687	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{4z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{1}{x^2z}+\frac{3}{x^2y}+\frac{3z}{x^2y^2}+\frac{z^2}{x^2y^3}$	3533: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xyz+x+yz}{y^2z}\right)$
3700	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2903: $\left(\frac{y(x+1)}{x}, x, z\right)$
3703	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3648: $\left(\frac{(y+z)(xz+y^2+yz)}{xyz^2}, \frac{(y+z)(xz+y^2+yz)}{xy^2z}, \frac{(y+z)(xz+y^2+yz)}{x^2z^2}\right)$
3709	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{2}{yz^2}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3513: $\left(x, \frac{z(y+1)}{y}, y\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3710	$x+\frac{x}{z}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{5}{xy}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	2903: $\left(\frac{(z+1)(xz+z+1)}{yz}, x, \frac{(z+1)(xz+z+1)}{yz^2}\right)$ 3864: $\left(x, y, \frac{z(y+1)}{y}\right)$ 3993: $\left(x, z, \frac{xyz}{xz+z+1}\right)$ 4065: $\left(y, z, \frac{yz+(z+1)^2}{xz}\right)$ 4227: $\left(y, z, \frac{xy^2z^2}{(yz+z+1)^2}\right)$
3711	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	2650: $\left(\frac{(x+y)^2}{x^2z}, y, x\right)$ 3034: $\left(\frac{(y+1)(x+z)}{y}, y, \frac{yz}{x}\right)$ 3648: $\left(x, \frac{y(xz+y+z)}{xz}, \frac{xz+y+z}{x}\right)$ 3685: $\left(x, \frac{(xz+y)^2}{xy^2z}, \frac{(xz+y)^2}{x^2yz^2}\right)$ 3954: $\left(x, \frac{(y+z)(xz+y+z)}{xyz^2}, \frac{(y+z)(xz+y+z)}{xy^2z}\right)$ 4109: $\left(x, \frac{(yz+1)^2(x+yz+1)}{xy^2z}, \frac{(yz+1)^2(x+yz+1)}{xy^3z^2}\right)$
3720	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3538: $\left(y+z, x, \frac{y(y+z)}{xz}\right)$
3721	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2z}$	3546: $\left(y, x, \frac{y(x+1)}{xz}\right)$
3725	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3546: $\left(y, x, \frac{z(y+1)}{y}\right)$
3742	$x+yz^2+2yz+y+2z+\frac{1}{y}+\frac{2}{yz}+\frac{4yz}{x}+\frac{4y}{x}+\frac{7}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{8}{x^2z}+\frac{3}{x^2yz^2}+\frac{4y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	3396: $\left(\frac{xz+yz+1}{z}, \frac{xz+yz+1}{yz^2}, \frac{xz^2}{xz+yz+1}\right)$
3759	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{1}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{1}{x^2yz^2}+\frac{4y}{x^3z}+\frac{2}{x^3z^2}+\frac{y}{x^4z^2}$	3129: $\left(\frac{(x+y)(xz+1)}{xz}, \frac{(x+y)(xz+1)}{x^2z^2}, \frac{x^2z}{y(x+y)(xz+1)}\right)$
3783	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{6z}{xy^2}+\frac{2z^2}{xy^3}+\frac{1}{x^2y}+\frac{3z}{x^2y^2}+\frac{3z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	3477: $\left(x, \frac{(yz+1)(xyz+1)}{xyz^2}, \frac{(yz+1)(xyz+1)}{xy^2z^3}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3797	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{7}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{6z}{xy}+\frac{8}{xy}+\frac{3}{xyz}+\frac{4z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	2894: $\left(\frac{(yz+y+z)^2}{xyz}, y, z\right)$
3798	$x+\frac{x}{yz}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	3464: $\left(\frac{x(y+1)^2}{y^2}, y, z\right)$ 4150: $\left(x, z, \frac{(xz+(z+1)^2)^2}{xyz^3}\right)$
3802	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{4yz}{x}+\frac{4y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	3162: $\left(\frac{xz+yz+1}{z}, \frac{xz+yz+1}{xz^2}, \frac{xz}{y(xz+yz+1)}\right)$
3803	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{4}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{4z}{x}+\frac{3}{x}+\frac{2z^2}{xy}+\frac{6z}{xy}+\frac{3z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3396: $\left(\frac{x(yz+1)}{yz}, \frac{yz+1}{z}, \frac{yz+1}{yz^2}\right)$
3816	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{2y}{xz^2}+\frac{y}{xz^3}+\frac{3}{x}+\frac{6}{xz}+\frac{3}{xz^2}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3294: $\left(\frac{(y+1)(x+y)^2}{xy^2z}, x, y\right)$
3828	$xy^2z^2+2xyz+x+y^2z+4yz+y+z+\frac{1}{y}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{2}{xyz}+\frac{6}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{4}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2969: $\left(\frac{(x+z)(xy+1)^2}{x^2y^2}, yz, \frac{x^3y^2}{z(x+z)(xy+1)^2}\right)$
3830	$x+\frac{x}{z}+\frac{2x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{5}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	3538: $\left(\frac{y(xz+y+z)}{xz}, x, \frac{xz+y+z}{x}\right)$
3833	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^3z}$	3296: $\left(\frac{(y+1)^2(xy+yz+z)}{xy^2z}, y, \frac{x}{z}\right)$
3836	$x+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{10}{xy}+\frac{10}{xyz}+\frac{5}{xyz^2}+\frac{1}{xyz^3}$	3296: $\left(\frac{z(y+1)(xy+(y+1)^2)}{xy^2}, x, y\right)$
3851	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{6yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{7}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3008: $\left(\frac{(xz+1)^2}{xz^2}, y, \frac{1}{xyz}\right)$ 3032: $\left(\frac{(xy+1)(xy+yz+1)}{xy^2}, \frac{1}{yz}, \frac{z}{x}\right)$
3854	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{6}{xy}+\frac{4}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	2990: $\left(x+y+z, \frac{x}{y}, \frac{z}{x}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3858	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{7}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{5}{xy}+\frac{2}{xyz}+\frac{z}{xy^2}+\frac{1}{xy^2}$	3034: $\left(\frac{(y+1)(yz+y+z)}{xy}, y, z\right)$
3860	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3312: $\left(\frac{z(y+1)(x+y+1)}{xy}, x, y\right)$
3864	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{5}{xy}+\frac{2z}{xy^2}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	3710: $\left(x, y, \frac{yz}{y+1}\right)$
3865	$x+y+\frac{y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{6}{xy}+\frac{1}{xyz}+\frac{3z}{xy^2}+\frac{2}{xy^2}+\frac{z}{xy^3}$	3013: $\left(\frac{(x+1)(x+z)^2}{xyz}, x, z\right)$
3872	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3546: $\left(x, \frac{z(y+1)^2}{y^2}, y\right)$
3873	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{4yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3034: $\left(\frac{(y+z)(x+z)^2}{xyz^2}, \frac{x}{y}, \frac{y}{z}\right)$
3904	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{2y}{x^2z^2}+\frac{6}{x^2z}+\frac{3y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{1}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{2y}{x^4z^3}+\frac{y^2}{x^5z^4}$	2437: $\left(\frac{(x^2y^3z+xy^2z+1)^2}{x^3y^4z^2}, yz, \frac{x^4y^6z^3}{(x^2y^3z+xy^2z+1)^2}\right)$
3914	$x+yz^3+3yz^2+3yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{5z}{x}+\frac{8}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{2}{x^2y}+\frac{6}{x^2yz}+\frac{6}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^2z^3}+\frac{1}{x^3y^2z^4}$	2498: $\left(\frac{(x+z)(x^2+xy+yz)}{x^2}, \frac{x^5}{y^2z(x+z)(x^2+xy+yz)}, \frac{y}{x}\right)$
3934	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2988: $\left(\frac{(x+y)(x+yz)}{yz}, z, \frac{y^2z^2}{x(x+y)(x+yz)}\right)$
3939	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{4}{y}+\frac{4}{yz}+\frac{6}{y^2z}+\frac{3}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{6}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3162: $\left(\frac{(yz+1)(xyz^2+yz+1)}{xy^2z^2}, \frac{(yz+1)(xyz^2+yz+1)}{xyz}, \frac{x^2yz^2}{(yz+1)(xyz^2+yz+1)}\right)$
3945	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{4}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{6y}{x^2z}+\frac{6}{x^2z}+\frac{2y^2}{x^3z}+\frac{4y}{x^3z}+\frac{y^2}{x^4z}$	3132: $\left(x, y, \frac{z(xy+x+y)^2}{x^2y^2}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
3954	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{5}{x}+\frac{6}{xz}+\frac{2z}{xy}+\frac{6}{xy}+\frac{2z}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	3711: $\left(x, \frac{y(xz+y+z)}{xz}, \frac{xz+y+z}{x}\right)$ 3972: $\left(\frac{x^2yz+(x+y)^2}{x^2y}, \frac{x^2y^2z}{x^2yz+(x+y)^2}, \frac{x^3yz}{x^2yz+(x+y)^2}\right)$ 4072: $\left(\frac{(yz+1)(xyz^2+(yz+1)^2)}{xy^2z^2}, \frac{x^2yz^2}{(yz+1)(xyz^2+(yz+1)^2)}, \frac{x^2y^2z^3}{(yz+1)(xyz^2+(yz+1)^2)}\right)$ 4164: $\left(\frac{(xyz+x+y)(xy^2z+(x+y)^2)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+x+y)(xy^2z+(x+y)^2)}, \frac{x^2y^4z^2}{(xyz+x+y)(xy^2z+(x+y)^2)}\right)$ 4264: $\left(\frac{(y+z)(xyz+y+z)(xyz^2+(y+z)^2)}{x^2y^2z^3}, \frac{x^3y^3z^3}{(y+z)(xyz+y+z)(xyz^2+(y+z)^2)}, \frac{x^3y^2z^4}{(y+z)(xyz+y+z)(xyz^2+(y+z)^2)}\right)$
3972	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{6}{xz}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	3954: $\left(\frac{xyz^2+(y+z)^2}{xz^2}, \frac{xyz^2+(y+z)^2}{xyz}, \frac{x^2yz^2}{xyz^2+(y+z)^2}\right)$
3975	$x+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{7}{xyz}+\frac{3}{xyz^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^3z^2}$	3464: $\left(\frac{x(y+1)(yz+1)}{y^2z}, y, z\right)$
3989	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{6}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3026: $\left(\frac{y(x+z)(xz+x+z)}{x^2z}, x, \frac{x}{z}\right)$ 3312: $\left(\frac{(x+z+1)(xz+x+z)}{xyz}, x, \frac{x}{z}\right)$
3990	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{5}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{7}{xy}+\frac{3}{xyz}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	3300: $\left(\frac{(xy+x+y)^2}{xy^2z}, x, y\right)$
3993	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{5}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{1}{xyz^3}$	3710: $\left(x, \frac{z(xy+y+1)}{xy}, y\right)$
3998	$xz^2+2xz+x+y+4z+\frac{6}{x}+\frac{3}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{4}{x^2z}+\frac{12}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{12}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{2}{x^3y^2z^3}+\frac{4}{x^4yz^3}+\frac{12}{x^4y^2z^3}+\frac{6}{x^5y^2z^4}+\frac{4}{x^5y^3z^4}+\frac{4}{x^6y^3z^5}+\frac{1}{x^7y^4z^6}$	3376: $\left(\frac{(x^2y^2z+xyz+1)^2}{x^3y^2z^2}, z, \frac{x^4y^3z^2}{(x^2y^2z+xyz+1)^2}\right)$
4016	$xz^2+2xz+x+y+4z+\frac{2z}{y}+\frac{2}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{8}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{4}{x^2z}+\frac{12}{x^2yz}+\frac{2}{x^2yz^2}+\frac{4}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{8}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{2}{x^4yz^3}+\frac{4}{x^4y^2z^3}+\frac{1}{x^5y^2z^4}$	3477: $\left(\frac{(yz+1)^2(xyz+1)}{xy^2z^3}, x, \frac{xy^3z^4}{(yz+1)^2(xyz+1)}\right)$ 4163: $\left(\frac{x^4z^2}{x^3z^2+y(xz+1)^2}, \frac{x^3z^2+y(xz+1)^2}{x^3yz^2}, \frac{x^3z^2+y(xz+1)^2}{x^3z}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
4045	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{1}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{6y}{x}+\frac{4y}{xz}+\frac{6z}{x}+\frac{7}{x}+\frac{2z^2}{xy}+\frac{6z}{xy}+\frac{2z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3601: $\left(\frac{xy^2+y+z}{y^2}, \frac{xy^2+y+z}{xy^3}, \frac{z(xy^2+y+z)}{xy^4}\right)$
4050	$x+\frac{x}{z}+\frac{x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	3513: $\left(x, \frac{z(y+1)(x+y+1)}{xy}, y\right)$
4063	$x+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{7}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{8}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	2903: $\left(\frac{(z+1)^2(xz+z+1)}{yz^2}, x, z\right)$
4065	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{7}{xy}+\frac{8}{xyz}+\frac{3}{xyz^2}+\frac{z}{xy^2}+\frac{4}{xy^2}+\frac{6}{xy^2z}+\frac{4}{xy^2z^2}+\frac{1}{xy^2z^3}$	3710: $\left(\frac{xy+(y+1)^2}{yz}, x, y\right)$
4067	$x+\frac{xz}{y}+\frac{x}{y}+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{z}{x}+\frac{4}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	3533: $\left(x, \frac{(x+yz)(xyz+x+yz)}{xy^2z}, \frac{yz}{x}\right)$
4072	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{4yz}{x}+\frac{6y}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{5y^2z}{x^2}+\frac{10y}{x^2}+\frac{10}{x^2z}+\frac{5}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	3954: $\left(\frac{(y+z)(xyz^2+(y+z)^2)}{xyz^2}, \frac{(y+z)(xyz^2+(y+z)^2)}{x^2y^2z^2}, \frac{x^2yz^3}{(y+z)(xyz^2+(y+z)^2)}\right)$
4109	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{4yz}{x}+\frac{8z}{x}+\frac{5}{x}+\frac{12}{xy}+\frac{2}{xyz}+\frac{8}{xy^2z}+\frac{2}{xy^3z^2}+\frac{y^2z^3}{x^2}+\frac{5yz^2}{x^2}+\frac{10z}{x^2}+\frac{10}{x^2y}+\frac{5}{x^2y^2z}+\frac{1}{x^2y^3z^2}$	3711: $\left(x, \frac{(y+z)^2(xz+y+z)}{xy^2z^2}, \frac{xy^3z}{(y+z)^2(xz+y+z)}\right)$ 4175: $\left(\frac{xy^2z+(yz+1)^3}{xyz}, \frac{x^2y^2z}{xy^2z+(yz+1)^3}, \frac{xy^2z+(yz+1)^3}{x^2y}\right)$ 4302: $\left(\frac{x^4yz^2}{x^3yz^2+(xz+1)^3}, \frac{x^3yz^2+(xz+1)^3}{x^3z^2}, \frac{x^4z^3}{x^3yz^2+(xz+1)^3}\right)$
4121	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{5}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{12}{xy}+\frac{10}{xyz}+\frac{3}{xyz^2}+\frac{z^2}{xy^2}+\frac{5z}{xy^2}+\frac{10}{xy^2}+\frac{10}{xy^2z}+\frac{5}{xy^2z^2}+\frac{1}{xy^2z^3}$	3674: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2}, y, z\right)$
4137	$x+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{11}{xy}+\frac{8}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3280: $\left(\frac{y(x+1)(x+z+1)}{x^2}, x, z\right)$ 3538: $\left(\frac{(x+1)(xyz+(y+z)^2)}{xy^2z}, x, \frac{y}{z}\right)$
4146	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{5}{x}+\frac{7}{xz}+\frac{3}{xz^2}+\frac{2z}{xy}+\frac{7}{xy}+\frac{8}{xyz}+\frac{3}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3546: $\left(\frac{z(y+1)^2(x+1)}{xy^2}, y, x\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
4150	$x+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{yz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{3z}{xy}+\frac{12}{xy}+\frac{18}{xyz}+\frac{12}{xyz^2}+\frac{3}{xyz^3}+\frac{z^2}{x^2y}+\frac{6z}{x^2y}+\frac{15}{x^2y}+\frac{20}{x^2yz}+\frac{15}{x^2yz^2}+\frac{6}{x^2yz^3}+\frac{1}{x^2yz^4}$	3798: $\left(x, \frac{(xy+(y+1)^2)^2}{xy^3z}, y\right)$
4152	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{6z}{x}+\frac{8}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{4}{xy}+\frac{4}{xyz}+\frac{4z}{x^2y}+\frac{13}{x^2y}+\frac{12}{x^2yz}+\frac{4}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{6}{x^3y^2}+\frac{12}{x^3y^2z}+\frac{6}{x^3y^2z^2}+\frac{4}{x^4y^3z}+\frac{4}{x^4y^3z^2}+\frac{1}{x^5y^4z^2}$	3396: $\left(\frac{(yz+1)(xz+yz+1)}{yz^2}, \frac{y^2z^3}{(yz+1)(xz+yz+1)}, \frac{x}{y}\right)$
4163	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{1}{y}+\frac{6yz}{x}+\frac{8y}{x}+\frac{2y}{xz}+\frac{7}{x}+\frac{2}{xz}+\frac{15y}{x^2}+\frac{12y}{x^2z}+\frac{y}{x^2z^2}+\frac{6}{x^2z}+\frac{20y}{x^3z}+\frac{8y}{x^3z^2}+\frac{2}{x^3z^2}+\frac{15y}{x^4z^2}+\frac{2y}{x^4z^3}+\frac{6y}{x^5z^3}+\frac{y}{x^6z^4}$	4016: $\left(\frac{x^3yz^2+(xz+1)^2}{x^2yz^2}, \frac{x^3yz^2+(xz+1)^2}{x^3y^2z^2}, \frac{x^3yz^3}{x^3yz^2+(xz+1)^2}\right)$
4164	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{4}{y}+\frac{6}{yz}+\frac{8}{y^2z}+\frac{5}{y^3z^2}+\frac{2y}{x}+\frac{4}{x}+\frac{6}{xz}+\frac{12}{xyz}+\frac{10}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{8}{x^2z}+\frac{10}{x^2yz^2}+\frac{2y}{x^3z}+\frac{5}{x^3z^2}+\frac{y}{x^4z^2}$	3954: $\left(\frac{(xyz+y+z)(xyz^2+(y+z)^2)}{x^2y^2z^2}, \frac{(xyz+y+z)(xyz^2+(y+z)^2)}{x^2yz^3}, \frac{x^3y^2z^3}{(xyz+y+z)(xyz^2+(y+z)^2)}\right)$
4165	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{5z}{x}+\frac{8}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2z}{x^2y}+\frac{8}{x^2y}+\frac{12}{x^2yz}+\frac{8}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^2z^3}+\frac{1}{x^3y^2z^4}$	3162: $\left(\frac{(xz+1)(xz+yz+1)}{xz^2}, \frac{x^2z^2}{y(xz+1)(xz+yz+1)}, yz\right)$
4172	$x+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{7}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{8}{xy}+\frac{12}{xyz}+\frac{4}{xyz^2}+\frac{3}{xy^2}+\frac{10}{xy^2z}+\frac{6}{xy^2z^2}+\frac{3}{xy^3z}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^2}$	3464: $\left(\frac{x(y+1)^2(yz+1)}{y^3z}, y, z\right)$
4175	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{4yz}{x}+\frac{8z}{x}+\frac{6}{x}+\frac{12}{xy}+\frac{4}{xyz}+\frac{8}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{y^2z^3}{x^2}+\frac{6yz^2}{x^2}+\frac{15z}{x^2}+\frac{20}{x^2y}+\frac{15}{x^2y^2z}+\frac{6}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	4109: $\left(\frac{xy^2z+(yz+1)^3}{xyz}, \frac{x^2y^2z}{xy^2z+(yz+1)^3}, \frac{xy^2z+(yz+1)^3}{x^2y}\right)$
4227	$x+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{7}{xz}+\frac{3}{xz^2}+\frac{2z}{xy}+\frac{9}{xy}+\frac{15}{xyz}+\frac{11}{xyz^2}+\frac{3}{xyz^3}+\frac{z}{xy^2}+\frac{5}{xy^2}+\frac{10}{xy^2z}+\frac{10}{xy^2z^2}+\frac{5}{xy^2z^3}+\frac{1}{xy^2z^4}$	3710: $\left(\frac{z(xy+y+1)^2}{x^2y^2}, x, y\right)$
4264	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{2y}{xz^2}+\frac{8}{x}+\frac{6}{xz}+\frac{5z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{2y^2}{x^2z^3}+\frac{10y}{x^2z^2}+\frac{20}{x^2z}+\frac{20}{x^2y}+\frac{10z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{y^2}{x^3z^4}+\frac{6y}{x^3z^3}+\frac{15}{x^3z^2}+\frac{20}{x^3yz}+\frac{15}{x^3y^2}+\frac{6z}{x^3y^3}+\frac{z^2}{x^3y^4}$	3954: $\left(\frac{xy^2z+(y+z)^2}{y^2z}, \frac{xy^3z}{xy^2z+(y+z)^2}, \frac{xy^2z^2}{xy^2z+(y+z)^2}\right)$

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Table 143 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 143a
4302	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+5z+\frac{12z^2}{y}+\frac{8z}{y}+\frac{8z^3}{y^2}+\frac{8}{x}+\frac{2}{xz}+\frac{30z}{xy}+\frac{12}{xy}+\frac{28z^2}{xy^2}+\frac{5}{x^2z}+\frac{40}{x^2y}+\frac{8}{x^2yz}+\frac{56z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{30}{x^3yz}+\frac{2}{x^3yz^2}+\frac{70}{x^3y^2}+\frac{12}{x^4yz^2}+\frac{56}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{28}{x^5y^2z^2}+\frac{8}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	4109: $\left(\frac{xy^3z^2+(yz+1)^3}{y^3z^2}, \frac{xy^4z^2}{xy^3z^2+(yz+1)^3}, \frac{y^2z}{xy^3z^2+(yz+1)^3}\right)$

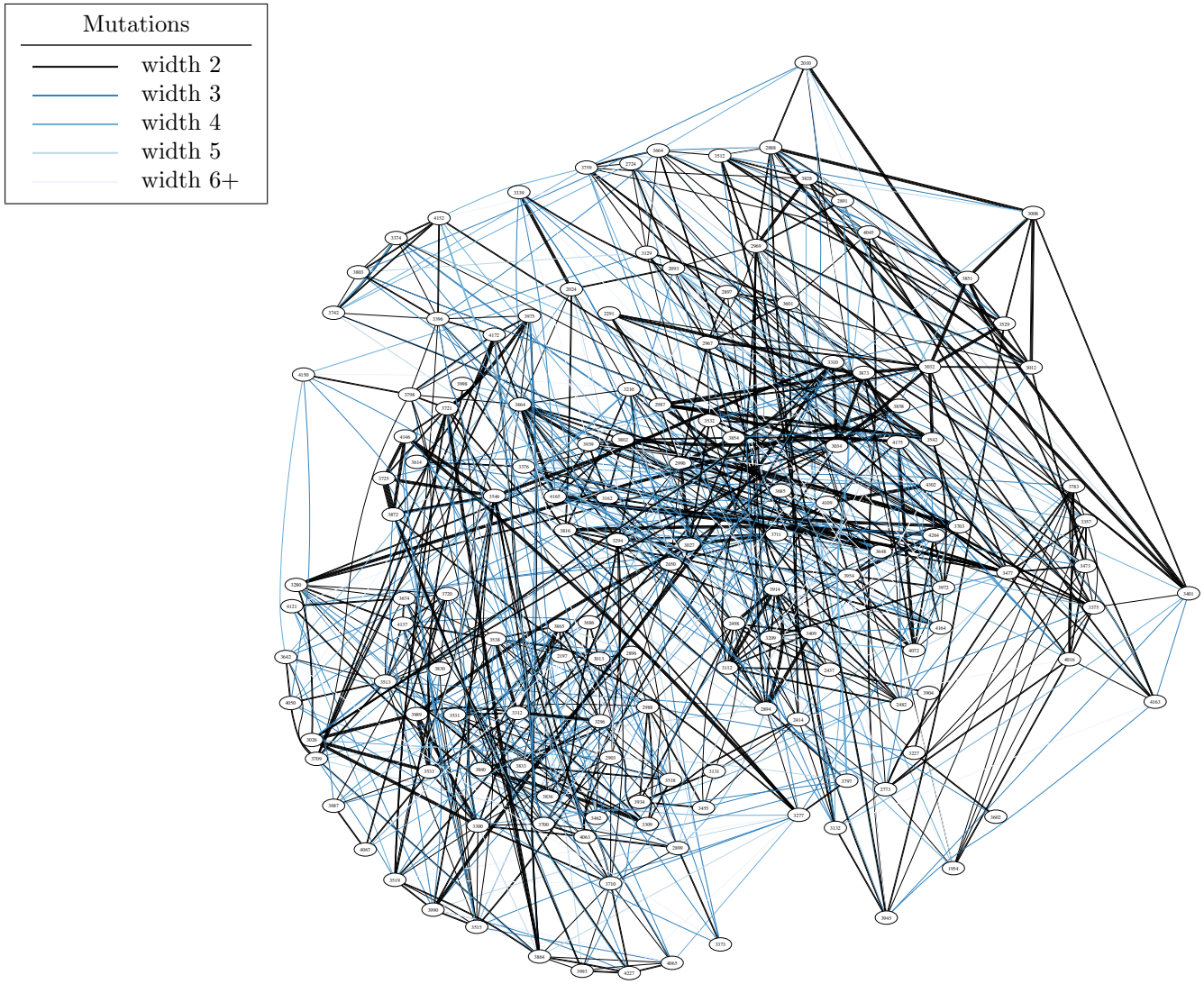

FIGURE 143B. All mutations between Minkowski polynomials in bucket 143

Bucket 144

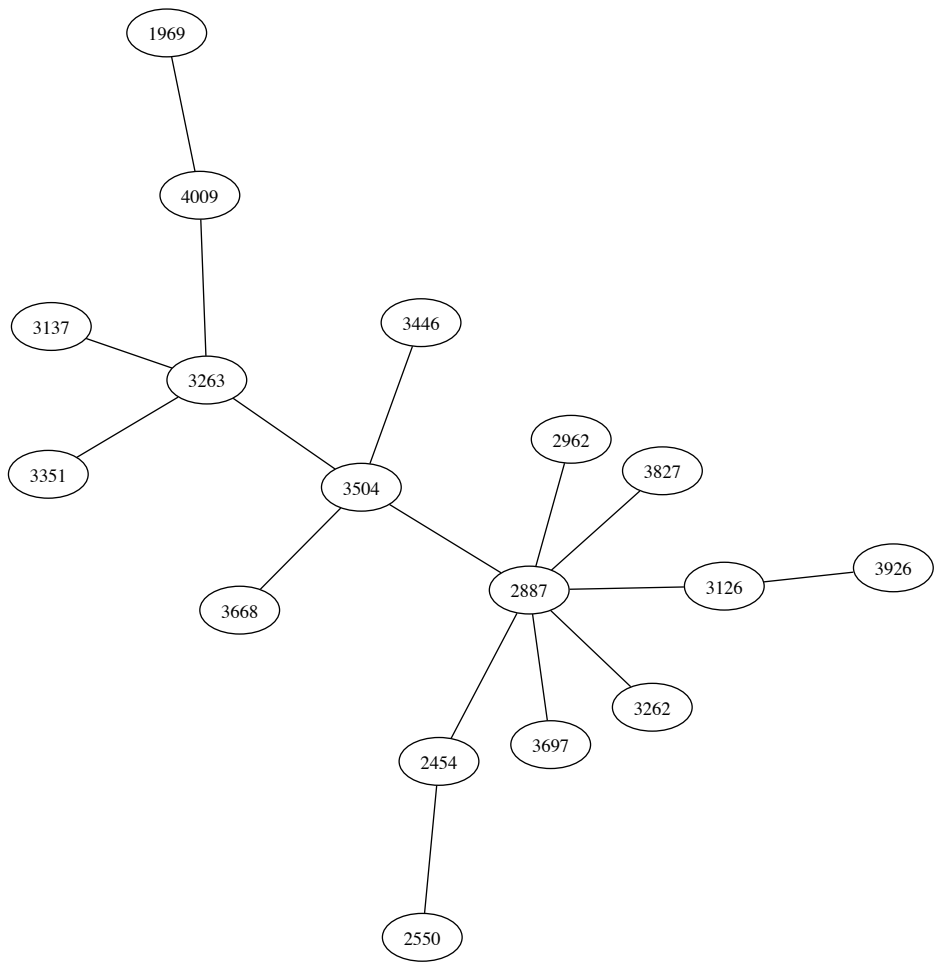

Figure 144a. Selected width-2 mutations between Minkowski polynomials in bucket 144

Table 144. Laurent polynomials and selected mutations for bucket 144.

Node	Laurent polynomial	Mutations from Figure 144a
1969	$xy^2+2xyz+2xy+xz^2+2xz+x+2y+2z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xyz}+\frac{1}{xy^2z^2}$	4009: $\left(\frac{x^3y^2z^2}{(xyz+y+z)^2}, \frac{1}{xy}, \frac{1}{xz}\right)$
2454	$x+\frac{x}{z}+yz^2+yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{y^2z^2}{x}+\frac{4yz}{x}+\frac{6}{x}+\frac{4}{xyz}+\frac{1}{xy^2z^2}$	2550: $\left(x+z, \frac{yz^2}{x(x+z)}, \frac{x+z}{yz}\right)$ 2887: $\left(x, \frac{y+z}{y^2}, \frac{yz}{y+z}\right)$
2550	$\frac{x^2}{yz^2}+x+\frac{x}{z}+\frac{x}{z^2}+\frac{3x}{yz}+yz+y+z+\frac{3}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{z}{x^2}$	2454: $\left(\frac{x}{yz+1}, \frac{yz+1}{yz^2}, \frac{xyz}{yz+1}\right)$
2887	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	2454: $\left(x, \frac{yz+1}{y}, z(yz+1)\right)$ 2962: $\left(x+y, \frac{x+y}{yz}, \frac{x(x+y)}{y^2z}\right)$ 3126: $\left(y, \frac{(xz+y)(xy^2z+(xz+y)^2)}{x^3yz^2}, \frac{(xz+y)(xy^2z+(xz+y)^2)}{x^2y^2z}\right)$ 3262: $\left(x+y, \frac{yz}{x}, z\right)$ 3504: $\left(\frac{z(x+y)^2}{x^2}, y, x\right)$ 3697: $\left(\frac{(x+z)^3}{xyz^2}, x, z\right)$ 3827: $\left(\frac{(y+z)^4}{xy^2z^2}, y, z\right)$
2962	$\frac{x^2}{y^2z}+x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+yz+y+z+\frac{1}{z}+\frac{3}{y}+\frac{y^2z}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{3}{x}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	2887: $\left(\frac{xz}{y+z}, \frac{xy}{y+z}, \frac{y+z}{y^2}\right)$
3126	$\frac{x^2z^2}{y^3}+x+\frac{xz}{y}+\frac{xz^2}{y^2}+\frac{4xz}{y^2}+y+z+\frac{4z}{y}+\frac{6}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{y^2}{x^3z^2}$	2887: $\left(\frac{(y+z)(xyz+(y+z)^2)}{y^2z^2}, x, \frac{xyz^3}{(y+z)(xyz+(y+z)^2)}\right)$ 3926: $\left(x, \frac{(xz+1)^4}{x^2yz^2}, \frac{(xz+1)^4}{x^2yz}\right)$
3137	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{y}{x^2}+\frac{z}{x^2}$	3263: $\left(z(xyz^2+1), \frac{xyz^2+1}{y}, \frac{xyz^2+1}{x}\right)$
3262	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{yz}{x}+\frac{y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{y}{x^2}$	2887: $\left(\frac{xz}{y+z}, \frac{xy}{y+z}, z\right)$

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Table 144 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 144a
3263	$xyz^3+2xyz^2+xyz+xz^2+2xz+x+yz^2+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}$	3137: $\left(\frac{x^2+yz}{yz^2}, \frac{x^2+yz}{y^2z}, \frac{xyz}{x^2+yz}\right)$ 3351: $\left(\frac{xy^2z^2}{xyz^2+yz+1}, \frac{y}{xyz^2+yz+1}, \frac{xyz^2+yz+1}{xyz}\right)$ 3504: $\left(z, \frac{x+y}{y^2}, \frac{y}{x}\right)$ 4009: $\left(\frac{x^3y^2z}{(xyz+y+z)(x^2yz+1)}, \frac{x^3yz^2}{(xyz+y+z)(x^2yz+1)}, \frac{(xyz+y+z)(x^2yz+1)}{x^2yz}\right)$
3351	$xz^2+2xz+x+yz^2+2yz+y+2z+\frac{2}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3263: $\left(\frac{xyz+x+y}{xyz^2}, xyz+x+y, \frac{xz}{xyz+x+y}\right)$
3446	$x+y+\frac{y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	3504: $\left(\frac{(x+y)^2}{y^2z}, \frac{(x+y)^2}{xy^2}, \frac{(x+y)^2}{x^2y}\right)$
3504	$\frac{x^2}{y^2z}+x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{y}{x^2}+\frac{y^2z}{x^3}$	2887: $\left(z, y, \frac{xz^2}{(y+z)^2}\right)$ 3263: $\left(\frac{z+1}{yz^2}, \frac{z+1}{yz}, x\right)$ 3446: $\left(\frac{(y+z)^2}{yz^2}, \frac{(y+z)^2}{y^2z}, \frac{(y+z)^2}{xz^2}\right)$ 3668: $\left(\frac{x}{yz+1}, \frac{xyz}{yz+1}, \frac{1}{yz^2}\right)$
3668	$x+yz^2+yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{1}{yz^2}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz}{x}+\frac{4y}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{4}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{xy^2z^3}$	3504: $\left(x+y, \frac{y^2z}{x^2}, \frac{x}{yz}\right)$
3697	$\frac{x^2}{yz^2}+\frac{x^2}{yz^3}+x+\frac{x}{z}+\frac{x}{z^2}+\frac{3x}{yz}+\frac{4x}{yz^2}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{yz}{x}+\frac{z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	2887: $\left(y, \frac{(y+z)^3}{xyz^2}, z\right)$
3827	$x+y+\frac{y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{y^2}{xz^3}+\frac{4y}{xz}+\frac{5y}{xz^2}+\frac{6}{x}+\frac{10}{xz}+\frac{4z}{xy}+\frac{10}{xy}+\frac{z^2}{xy^2}+\frac{5z}{xy^2}+\frac{z^2}{xy^3}$	2887: $\left(\frac{(y+z)^4}{xy^2z^2}, y, z\right)$
3926	$\frac{x^2z^3}{y}+\frac{x^2z^2}{y}+xz^2+xz+x+\frac{6xz^2}{y}+\frac{4xz}{y}+y+4z+\frac{15z}{y}+\frac{6}{y}+\frac{6}{x}+\frac{1}{xz}+\frac{20}{xy}+\frac{4}{xyz}+\frac{4}{x^2z}+\frac{15}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^3z^2}+\frac{6}{x^3yz^2}+\frac{1}{x^4yz^3}$	3126: $\left(x, \frac{(xz+y)^4}{x^2y^3z^2}, \frac{z}{y}\right)$

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Table 144 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 144a
4009	$x^3y^2z^2+2x^2y^2z+2x^2yz^2+2x^2yz+xy^2+4xyz+2xy+xz^2+2xz+x+4y+4z+\frac{2y}{xz}+\frac{5}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{2}{x^2z}+\frac{2}{x^2y}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	1969: $\left(x(y+z+1)^2, \frac{1}{xy(y+z+1)^2}, \frac{1}{xz(y+z+1)^2}\right)$ 3263: $\left(\frac{(xyz+x+y)(xyz^2+1)}{xyz^2}, \frac{x^2yz^3}{(xyz+x+y)(xyz^2+1)}, \frac{xy^2z^3}{(xyz+x+y)(xyz^2+1)}\right)$

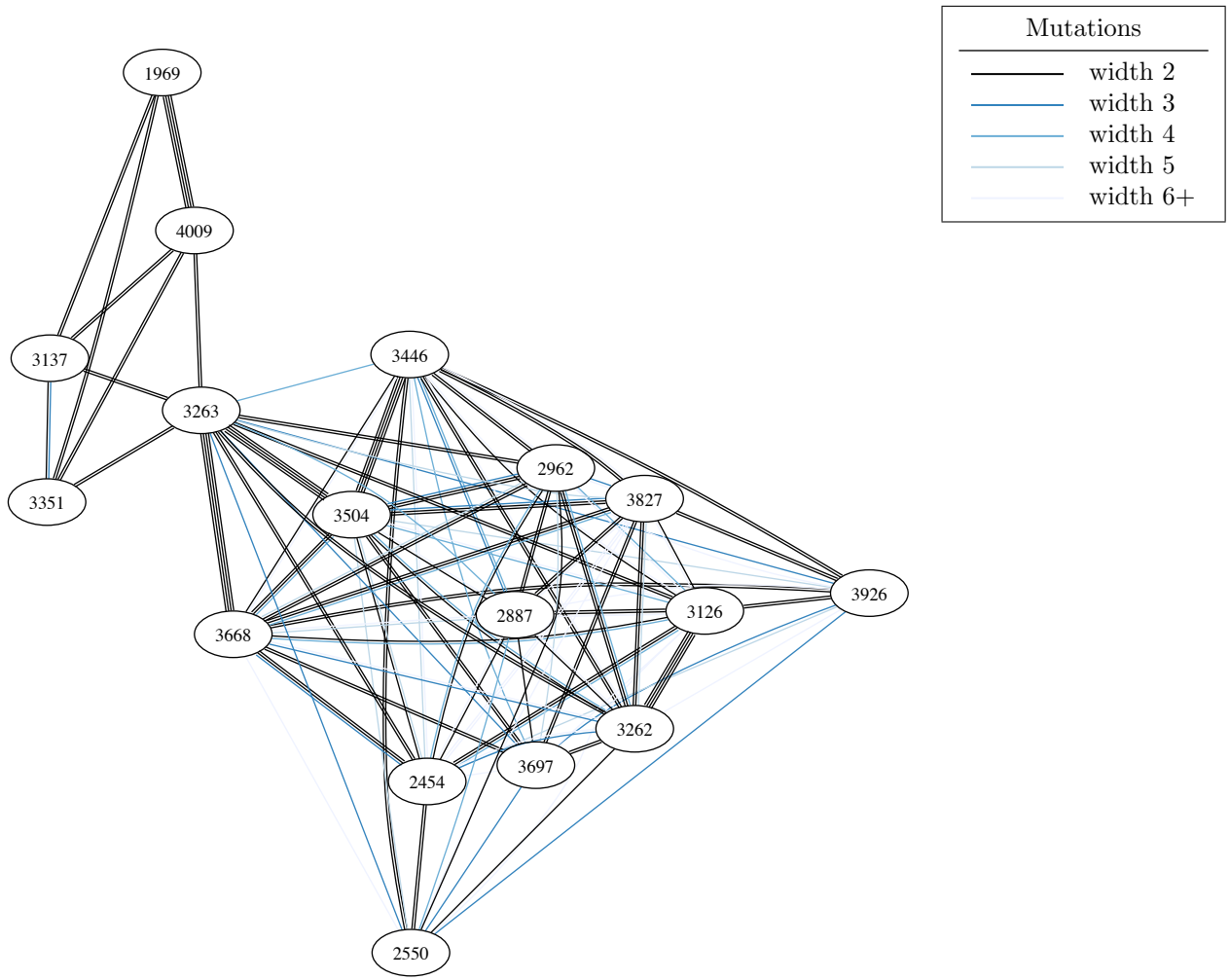

Figure 144b. All mutations between Minkowski polynomials in bucket 144

Bucket 145

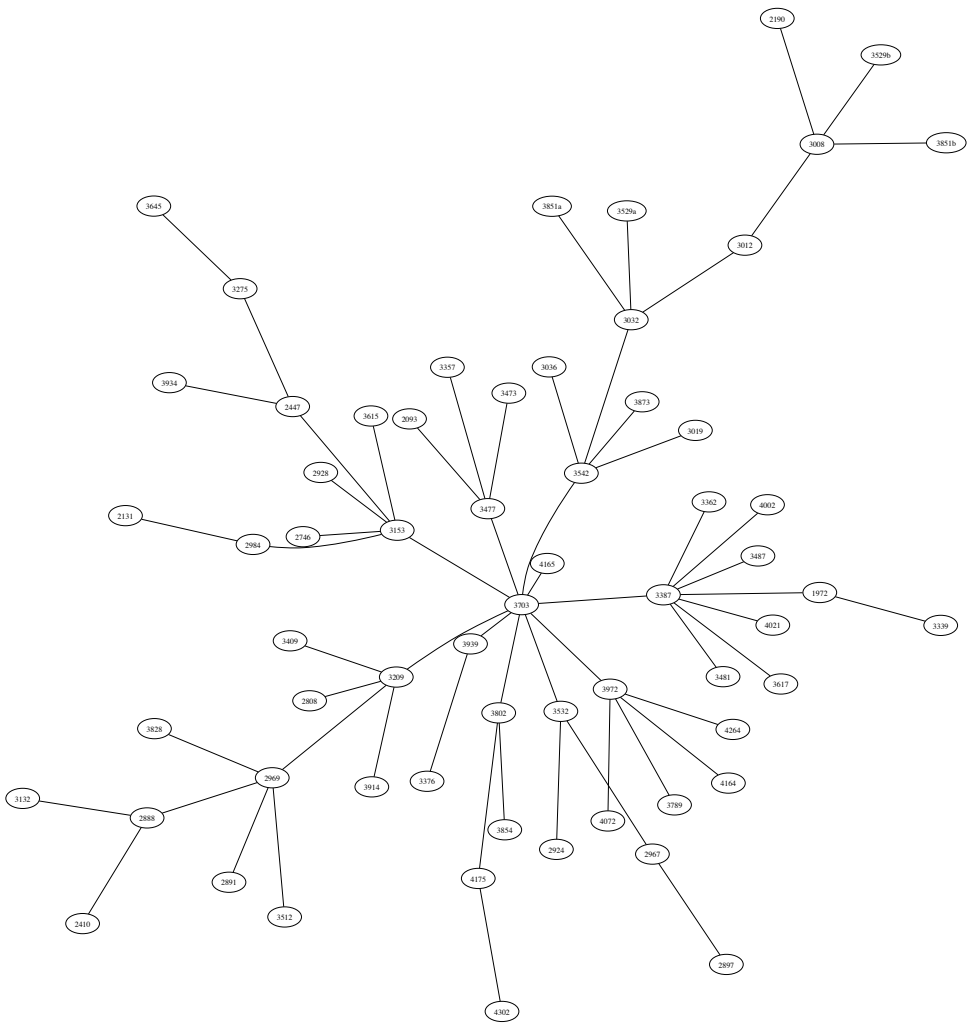

Figure 145a. Selected width-2 mutations between Minkowski polynomials in bucket 145

Table 145. Laurent polynomials and selected mutations for bucket 145.

Node	Laurent polynomial	Mutations from Figure 145a
1972	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{2}{xyz}+\frac{y}{x^2}$	3339: $\left(\frac{xz}{xy^2+z}, \frac{x^2y^2}{xy^2+z}, \frac{xy^2+z}{xy}\right)$ 3387: $\left(x, y(z+1)^2, \frac{1}{yz(z+1)^2}\right)$
2093	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	3477: $\left(\frac{(z+1)^2}{xz}, y, z\right)$
2131	$xy^2+2xy+x+\frac{x}{z}+y^2z+2yz+2y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	2984: $\left(\frac{1}{z}, \frac{x}{y}, \frac{y^2}{x+y}\right)$
2190	$xz^2+2xz+x+y+\frac{y}{z}+3z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	3008: $\left(z(xz+1), y, \frac{x}{xz+1}\right)$
2410	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	2888: $\left(\frac{xz+1}{xyz}, z(xz+1), \frac{x}{xz+1}\right)$
2447	$\frac{x^2z}{y^2}+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{2xz}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	3153: $\left(z, \frac{yz}{x}, \frac{x+y}{x^2}\right)$ 3275: $\left(z, \frac{xz+x+yz}{xy}, \frac{xz+x+yz}{y^2z}\right)$ 3934: $\left(y, \frac{x^2y^2z}{xy^2z+(xz+y)^2}, \frac{xy^2}{xy^2z+(xz+y)^2}\right)$
2746	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{yz}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	3153: $\left(x+y, \frac{y^2z}{x(x+y)}, \frac{x}{y}\right)$
2808	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3209: $\left(\frac{(x+y)(x+y+z)}{xyz}, \frac{(x+y)(x+y+z)}{x^2y}, \frac{(x+y)(x+y+z)}{xy^2}\right)$
2888	$xz^2+2xz+x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xyz}$	2410: $\left(z(yz+1), \frac{yz+1}{xyz}, \frac{y}{yz+1}\right)$ 2969: $\left(x+z, yz, \frac{1}{xy}\right)$ 3132: $\left(\frac{x^2}{x+y}, \frac{xz}{x+y}, \frac{x+y}{xy}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
2891	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{1}{y}+\frac{2y}{x}+\frac{3y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y}{x^2z^2}+\frac{y^2}{x^3z^2}$	2969: $\left(\frac{(xy+1)^2}{x},\frac{1}{z},\frac{x^2y}{z(xy+1)^2}\right)$
2897	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2967: $\left(z(xz+1),\frac{xz+1}{x},y\right)$
2924	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{xz}{y^2}+y+z+\frac{4z}{y}+\frac{2}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{1}{xz}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{y^2}{x^3z^2}$	3532: $\left(\frac{(x+y)(xyz+(x+y)^2)}{x^2y^2},z,\frac{x^3yz}{(x+y)(xyz+(x+y)^2)}\right)$
2928	$x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	3153: $\left(\frac{(x+y)(xz+x+yz)}{x^2yz},\frac{(x+y)(xz+x+yz)}{xy^2z},\frac{yz}{x}\right)$
2967	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	2897: $\left(\frac{x+y}{y^2},z,\frac{xy}{x+y}\right)$ 3532: $\left(\frac{x^2}{x+y},z,\frac{y}{x}\right)$
2969	$xy^2+2xy+x+yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2z}{x}+\frac{1}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y}+\frac{z}{x^2y^2}$	2888: $\left(\frac{yz+1}{xz^2},\frac{xz}{yz+1},y\right)$ 2891: $\left(\frac{(xz+y)^2}{xy^2},\frac{x^2yz}{(xz+y)^2},\frac{1}{y}\right)$ 3209: $\left(\frac{xy+xz+yz}{y^2z},\frac{y}{x},\frac{xy+xz+yz}{xy^2}\right)$ 3512: $\left(\frac{(x+y)(xz+y)}{xy^2z},\frac{x^2yz}{(x+y)(xz+y)},\frac{1}{z}\right)$ 3828: $\left(\frac{(xz+1)(xyz+1)^2}{x^2z},\frac{x^3yz^2}{(xz+1)(xyz+1)^2},y\right)$
2984	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	2131: $\left(\frac{xy+1}{xy^2z},\frac{xy+1}{yz},\frac{1}{xy^2}\right)$ 3153: $\left(\frac{yz}{x},z,\frac{y^2z}{xz+x+yz}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3008	$xz^2+2xz+x+yz+y+3z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{1}{xyz}$	$2190\colon \left(z(xz+1), y, \frac{x}{xz+1}\right)$ $3012\colon \left(\frac{xz+y^2+yz}{y^2z}, \frac{y}{z}, \frac{y}{x}\right)$ $3529b\colon \left(\frac{x^2}{x+y}, z, \frac{x+y}{xy}\right)$ $3851b\colon \left(\frac{x}{(yz+1)^2}, y, \frac{(yz+1)^2}{xyz}\right)$
3012	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{3}{x}+\frac{y^2}{x^2z}+\frac{y}{x^2}$	$3008\colon \left(\frac{yz+y+z}{xyz^2}, \frac{yz+y+z}{xyz}, \frac{yz+y+z}{xz}\right)$ $3032\colon \left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z(xy+1)}{xy}\right)$
3019	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{z}{x^2}$	$3542\colon \left(\frac{(x+y)(x+yz+y)}{xy^2}, \frac{(x+y)(x+yz+y)}{xy^2z}, \frac{(x+y)(x+yz+y)}{x^2y}\right)$
3032	$xy^2+2xy+x+yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{1}{xy^2}+\frac{1}{xy^2z}$	$3012\colon \left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{xz}{x+y}\right)$ $3529a\colon \left(\frac{xz+yz+y}{y^2z}, \frac{xyz}{xz+yz+y}, \frac{xz+yz+y}{xy}\right)$ $3542\colon \left(\frac{x^2}{x+y}, \frac{y}{x}, z\right)$ $3851a\colon \left(\frac{x}{(yz+1)(y^2z+yz+1)}, \frac{(yz+1)(y^2z+yz+1)}{xyz}, \frac{xy^2z}{(yz+1)(y^2z+yz+1)}\right)$
3036	$\frac{x^2}{yz}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{1}{z}+\frac{z}{y}+\frac{1}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{yz}{x^2}$	$3542\colon \left(\frac{xy}{xz+x+yz}, \frac{x^2}{xz+x+yz}, \frac{1}{z}\right)$
3132	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	$2888\colon \left(\frac{xz+1}{z}, \frac{xz+1}{xz^2}, \frac{y(xz+1)}{xz}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3153	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2447: $\left(\frac{x+y}{xz}, \frac{y(x+y)}{x^2z}, x\right)$ 2746: $\left(\frac{xz}{z+1}, \frac{x}{z+1}, yz(z+1)\right)$ 2928: $\left(\frac{(x+y)(xz+x+yz)}{x^2yz}, \frac{(x+y)(xz+x+yz)}{xy^2z}, \frac{yz}{x}\right)$ 2984: $\left(\frac{yz(x+y+1)}{x^2}, \frac{z(x+y+1)}{x}, y\right)$ 3615: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, y\right)$ 3703: $\left(\frac{x^2}{x+z}, \frac{xy}{x+z}, \frac{x+z}{yz}\right)$
3209	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2808: $\left(\frac{(y+z)(xy+xz+yz)}{xy^2z}, \frac{(y+z)(xy+xz+yz)}{xyz^2}, \frac{(y+z)(xy+xz+yz)}{x^2yz}\right)$ 2969: $\left(\frac{xy+yz+z}{xy^2z}, \frac{xy+yz+z}{xyz}, \frac{xy+yz+z}{x^2y^2}\right)$ 3409: $\left(\frac{(x+y^2z+y)(xyz+x+y^2z)}{xy^3z}, \frac{(x+y^2z+y)(xyz+x+y^2z)}{x^2y^2z}, \frac{(x+y^2z+y)(xyz+x+y^2z)}{xy^4z^2}\right)$ 3703: $\left(x, y, \frac{z(x+y)}{x}\right)$ 3914: $\left(\frac{(z+1)(xyz^2+z+1)(xyz^2+xyz+1)}{x^2yz^3}, \frac{(z+1)(xyz^2+z+1)(xyz^2+xyz+1)}{x^2yz^2}, \frac{(z+1)(xyz^2+z+1)(xyz^2+xyz+1)}{x^3y^2z^4}\right)$
3275	$x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y}{x^2}$	2447: $\left(\frac{xyz+xz+y^2}{xy}, \frac{xyz+xz+y^2}{x^2z}, y\right)$ 3645: $\left(x, y, \frac{(xy+x+y)^2}{xy^2z}\right)$
3339	$\frac{xy^4}{z^2}+\frac{2xy^3}{z}+xy^2+\frac{2xy^2}{z}+2xy+x+\frac{5y^2}{z}+6y+z+\frac{2y}{xz}+\frac{10}{x}+\frac{4z}{xy}+\frac{2}{xy}+\frac{6}{x^2y}+\frac{6z}{x^2y^2}+\frac{1}{x^3y^2}+\frac{4z}{x^3y^3}+\frac{z}{x^4y^4}$	1972: $\left(x+y, \frac{yz}{x+y}, \frac{xyz^2}{x+y}\right)$
3357	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{3xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{4xz^2}{y^3}+y+z+\frac{4z}{y}+\frac{6}{y}+\frac{6z}{y^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	3477: $\left(x, \frac{(yz+1)^2}{y}, \frac{(yz+1)^2}{xy^2z}\right)$
3362	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{4z}{x}+\frac{4}{x}+\frac{6}{xy}+\frac{2}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^3z^2}$	3387: $\left(x, \frac{y(z+1)^2(x+1)}{x}, \frac{xz}{y(z+1)^2(x+1)}\right)$
3376	$xy^2+2xy+x+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2yz}+\frac{5}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3939: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{z(x+y)}{x}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3387	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2yz^2}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	1972: $\left(x, \frac{y^3z^2}{(yz+1)^2}, \frac{1}{yz}\right)$ 3362: $\left(x, \frac{xy}{(yz+1)^2(x+1)}, yz\right)$ 3481: $\left(x, \frac{xy^2}{(y+z)(x+1)}, \frac{z}{y}\right)$ 3487: $\left(x, \frac{x}{y(x+1)}, yz\right)$ 3617: $\left(x, \frac{xy^2}{xy+xz+y}, \frac{xy+xz+y}{xyz}\right)$ 3703: $\left(\frac{(x+z)(x+y)}{xyz}, \frac{(x+z)(x+y)}{x^3}, \frac{x}{y}\right)$ 4002: $\left(y, \frac{xy^2}{(xyz+y+1)^2}, \frac{(xyz+y+1)^2}{x^2y^2z}\right)$ 4021: $\left(y, \frac{x^3y^2z^2}{(y+1)^2(xz+1)^2}, \frac{1}{xz}\right)$
3409	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{5}{y}+\frac{2}{yz}+\frac{5}{y^2z}+\frac{1}{y^3z^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xyz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	3209: $\left(\frac{(x+y+z)(xy+xz+yz)}{xy^2z}, \frac{(x+y+z)(xy+xz+yz)}{x^2yz}, \frac{x^3y}{(x+y+z)(xy+xz+yz)}\right)$
3473	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{3}{xy}+\frac{2z^2}{xy^2}+\frac{3z}{xy^2}+\frac{z^2}{xy^3}$	3477: $\left(x, \frac{yz+1}{z}, \frac{yz+1}{yz^2}\right)$
3477	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	2093: $\left(\frac{(z+1)^2}{xz}, y, z\right)$ 3357: $\left(x, \frac{(xz+y)^2}{x^2yz^2}, \frac{xy^2z}{(xz+y)^2}\right)$ 3473: $\left(x, \frac{y^2}{y+z}, \frac{y+z}{yz}\right)$ 3703: $\left(\frac{x+y}{yz}, \frac{x^2}{x+y}, \frac{y}{x}\right)$
3481	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3387: $\left(x, \frac{y(z+1)(x+1)}{x}, \frac{yz(z+1)(x+1)}{x}\right)$
3487	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{1}{xy}+\frac{2}{xyz}+\frac{1}{xyz^2}$	3387: $\left(x, \frac{x}{y(x+1)}, \frac{yz(x+1)}{x}\right)$
3512	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{3y}{x}+\frac{2y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	2969: $\left(\frac{(xy+1)(xy+z)}{x}, \frac{(xy+1)(xy+z)}{x^2y}, \frac{1}{z}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3529a	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3032: $\left(\frac{xy^2z+yz+1}{z},\frac{xy^2z+yz+1}{xyz},yz\right)$
3529b	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{4}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3008: $\left(\frac{xz+1}{z},\frac{xz+1}{xz^2},y\right)$
3532	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{2y}{x}+\frac{y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{y}{x^2}+\frac{y}{x^2z}$	2924: $\left(\frac{(xz+y)(x^2z+(xz+y)^2)}{x^3yz^2},\frac{(xz+y)(x^2z+(xz+y)^2)}{x^2y^2z},\frac{x}{y}\right)$ 2967: $(x(z+1),xz(z+1),y)$ 3703: $\left(x,y,\frac{z(x+y)(xy+x+y)}{x^2y}\right)$
3542	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3019: $\left(\frac{(x+z)(xy+xz+yz)}{xyz^2},\frac{(x+z)(xy+xz+yz)}{x^2yz},\frac{x}{y}\right)$ 3032: $(x(y+1),xy(y+1),z)$ 3036: $\left(\frac{x+yz+y}{z},\frac{x(x+yz+y)}{yz},\frac{1}{z}\right)$ 3703: $\left(y,x,\frac{z(xy+x+y)}{x^2}\right)$ 3873: $\left(\frac{x}{yz+1},\frac{xyz}{yz+1},\frac{1}{y}\right)$
3615	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{6}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{4z}{xy}+\frac{6}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3153: $\left(x+y,z,\frac{yz}{x}\right)$
3617	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{4y}{xz}+\frac{3y}{xz^2}+\frac{4}{x}+\frac{6}{xz}+\frac{3}{xy}+\frac{2y}{x^2z}+\frac{3y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^2}$	3387: $\left(x,\frac{xyz+x+yz}{xz},\frac{xyz+x+yz}{xyz^2}\right)$
3645	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3275: $\left(x,y,\frac{(xy+x+y)^2}{xy^2z}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3703	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3153: $\left(\frac{x(yz+1)}{yz}, \frac{yz+1}{z}, \frac{x(yz+1)}{y^2z^2}\right)$ 3209: $\left(x, y, \frac{xz}{x+y}\right)$ 3387: $\left(\frac{(z+1)(x+yz)}{xyz}, \frac{(z+1)(x+yz)}{xyz^2}, \frac{(z+1)(x+yz)}{x^2}\right)$ 3477: $\left(y(z+1), yz(z+1), \frac{z+1}{xz}\right)$ 3532: $\left(x, y, \frac{x^2yz}{(x+y)(xy+x+y)}\right)$ 3542: $\left(y, x, \frac{y^2z}{xy+x+y}\right)$ 3802: $\left(\frac{(yz+1)(xz+(yz+1)^2)}{xyz}, \frac{(yz+1)(xz+(yz+1)^2)}{xy^2z^2}, \frac{(yz+1)(xz+(yz+1)^2)}{x^2z}\right)$ 3939: $\left(\frac{y^2z}{yz+1}, \frac{xyz}{yz+1}, \frac{y}{yz+1}\right)$ 3972: $\left(y, x, \frac{x+y}{xz}\right)$ 4165: $\left(\frac{x^2yz^2}{(z+1)(xyz+1)}, \frac{x^2yz}{(z+1)(xyz+1)}, \frac{xz}{(z+1)(xyz+1)}\right)$
3789	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{2y}{xz^2}+\frac{4}{x}+\frac{6}{xz}+\frac{2z}{xy}+\frac{6}{xy}+\frac{2z}{xy^2}+\frac{y}{x^2z^2}+\frac{3}{x^2z}+\frac{3}{x^2y}+\frac{z}{x^2y^2}$	3972: $\left(\frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}, \frac{xy^2z}{xyz+x+y}\right)$
3802	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{5yz}{x}+\frac{4y}{x}+\frac{8}{x}+\frac{2}{xz}+\frac{5}{xyz}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	3703: $\left(\frac{(x+y)(x^2y+z(x+y)^2)}{x^2y^2z}, \frac{(x+y)(x^2y+z(x+y)^2)}{x^3y^2}, \frac{x^4y}{(x+y)(x^2y+z(x+y)^2)}\right)$ 3854: $\left(x, \frac{xy^2z}{xyz+(yz+1)^2}, \frac{xyz+(yz+1)^2}{xy^3z^2}\right)$ 4175: $\left(x, \frac{x^2y^3z^2}{(xyz+(yz+1)^2)^2}, \frac{(xyz+(yz+1)^2)^2}{x^2y^4z^3}\right)$
3828	$xy^2z^2+2xyz+x+y^2z+4yz+y+z+\frac{1}{y}+\frac{4y}{x}+\frac{7}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{6}{x^2z}+\frac{6}{x^2yz}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z}+\frac{4}{x^3yz^2}+\frac{2}{x^3y^2z^2}+\frac{1}{x^4y^2z^3}$	2969: $\left(\frac{(xy+1)^2(xy+z)}{x^2y}, z, \frac{x^3y^2}{z(xy+1)^2(xy+z)}\right)$
3851a	$x+y^2z+3yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{6yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{7}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{4}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3032: $\left(\frac{(xy+1)(xy+yz+1)}{xy^2}, yz, \frac{1}{xy^2z}\right)$
3851b	$x+y^2z+2yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{7yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{9}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3008: $\left(\frac{(xz+1)^2}{xz^2}, y, \frac{1}{xyz}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
3854	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{8}{x}+\frac{1}{xz}+\frac{6}{xy}+\frac{5}{xyz}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}+\frac{1}{xy^3z^2}$	3802: $\left(x, \frac{xyz+(yz+1)^2}{xz}, \frac{x}{y(xyz+(yz+1)^2)}\right)$
3873	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{8}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3542: $\left(x+y, \frac{1}{z}, \frac{yz}{x}\right)$
3914	$x+yz^3+3yz^2+3yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{6z}{x}+\frac{10}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{2}{x^2y}+\frac{7}{x^2yz}+\frac{7}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^2z^3}+\frac{1}{x^3y^2z^4}$	3209: $\left(\frac{(x+y)(x+y+z)(xy+xz+yz)}{x^2y^2z}, \frac{x^4y}{(x+y)(x+y+z)(xy+xz+yz)}, \frac{y}{x}\right)$
3934	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{8}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{7}{x^2z}+\frac{2}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	2447: $\left(\frac{x^2yz+(xz+y)^2}{x^2z}, x, \frac{x^2y}{x^2yz+(xz+y)^2}\right)$
3939	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{5}{y}+\frac{4}{yz}+\frac{7}{y^2z}+\frac{3}{y^3z^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{7}{xyz}+\frac{3}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3376: $\left(x(y+1), xy(y+1), \frac{z}{y+1}\right)$ 3703: $\left(\frac{y(x+z)}{x}, x+z, \frac{x}{z(x+z)}\right)$
3972	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{4}{y^2z}+\frac{2y}{x}+\frac{y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{6}{xyz}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	3703: $\left(y, x, \frac{x+y}{yz}\right)$ 3789: $\left(\frac{xyz+y+z}{xy}, \frac{xyz+y+z}{xz}, \frac{x^2yz}{xyz+y+z}\right)$ 4072: $\left(\frac{xyz}{yz+1}, \frac{x}{yz+1}, \frac{yz+1}{y}\right)$ 4164: $\left(\frac{xy^2z}{xyz+x+y}, \frac{x^2yz}{xyz+x+y}, \frac{xyz+x+y}{xy}\right)$ 4264: $\left(\frac{x^2yz^2}{(y+z)(xyz+y+z)}, \frac{x^2y^2z}{(y+z)(xyz+y+z)}, \frac{(y+z)(xyz+y+z)}{xyz}\right)$
4002	$xz^2+2xz+x+y+4z+\frac{4z}{y}+\frac{4}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{12}{xy}+\frac{4}{xyz}+\frac{6}{xy^2}+\frac{2}{xy^2z}+\frac{4}{x^2z}+\frac{12}{x^2yz}+\frac{12}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3387: $\left(\frac{(xyz+x+yz)^2}{x^2yz^2}, x, \frac{x^2z}{(xyz+x+yz)^2}\right)$
4021	$xz^2+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+4z+\frac{8z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{6}{x}+\frac{2}{xz}+\frac{12}{xy}+\frac{2}{xyz}+\frac{6}{xy^2}+\frac{4}{x^2z}+\frac{8}{x^2yz}+\frac{4}{x^2y^2z}+\frac{1}{x^3z^2}+\frac{2}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3387: $\left(\frac{y(z+1)^2(x+1)^2}{x^2}, x, \frac{x^2}{yz(z+1)^2(x+1)^2}\right)$

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Table 145 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 145a
4072	$x+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{5yz}{x}+\frac{6y}{x}+\frac{8}{x}+\frac{6}{xz}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{5y^2z}{x^2}+\frac{10y}{x^2}+\frac{10}{x^2z}+\frac{5}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	3972: $\left(x+y, \frac{x+y}{yz}, \frac{xz}{x+y}\right)$
4164	$x+\frac{2x}{y}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{2x}{y^3z}+\frac{x}{y^4z^2}+y+z+\frac{5}{y}+\frac{6}{yz}+\frac{9}{y^2z}+\frac{5}{y^3z^2}+\frac{2y}{x}+\frac{5}{x}+\frac{6}{xz}+\frac{14}{xyz}+\frac{10}{xy^2z^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{9}{x^2z}+\frac{10}{x^2yz^2}+\frac{2y}{x^3z}+\frac{5}{x^3z^2}+\frac{y}{x^4z^2}$	3972: $\left(\frac{xyz+x+y}{xz}, \frac{xyz+x+y}{yz}, \frac{xyz^2}{xyz+x+y}\right)$
4165	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{6z}{x}+\frac{10}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{2z}{x^2y}+\frac{9}{x^2y}+\frac{14}{x^2yz}+\frac{9}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^2z^3}+\frac{1}{x^3y^2z^4}$	3703: $\left(\frac{(x+z)(x+y)}{x}, \frac{xy}{z(x+z)(x+y)}, \frac{x}{y}\right)$
4175	$x+2yz+y+z+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{5yz}{x}+\frac{8z}{x}+\frac{8}{x}+\frac{12}{xy}+\frac{5}{xyz}+\frac{8}{xy^2z}+\frac{1}{xy^2z^2}+\frac{2}{xy^3z^2}+\frac{y^2z^3}{x^2}+\frac{6yz^2}{x^2}+\frac{15z}{x^2}+\frac{20}{x^2y}+\frac{15}{x^2y^2z}+\frac{6}{x^2y^3z^2}+\frac{1}{x^2y^4z^3}$	3802: $\left(x, \frac{(xyz+(yz+1)^2)^2}{x^2yz^2}, \frac{x^2z}{(xyz+(yz+1)^2)^2}\right)$ 4302: $\left(\frac{(x^2yz+(xz+1)^2)(x^3yz^2+(xz+1)^4)}{x^5yz^3}, \frac{x^6y^2z^3}{(x^2yz+(xz+1)^2)(x^3yz^2+(xz+1)^4)}, \frac{(x^2yz+(xz+1)^2)(x^3yz^2+(xz+1)^4)}{x^7y^2z^4}\right)$
4264	$x+y+\frac{2y}{z}+z+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{6y}{xz}+\frac{2y}{xz^2}+\frac{10}{x}+\frac{6}{xz}+\frac{6z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{2y^2}{x^2z^3}+\frac{11y}{x^2z^2}+\frac{23}{x^2z}+\frac{23}{x^2y}+\frac{11z}{x^2y^2}+\frac{2z^2}{x^2y^3}+\frac{y^2}{x^3z^4}+\frac{6y}{x^3z^3}+\frac{15}{x^3z^2}+\frac{20}{x^3yz}+\frac{15}{x^3y^2}+\frac{6z}{x^3y^3}+\frac{z^2}{x^3y^4}$	3972: $\left(\frac{(x+y)(xyz+x+y)}{xyz}, \frac{xy^2z^2}{(x+y)(xyz+x+y)}, \frac{x^2yz^2}{(x+y)(xyz+x+y)}\right)$
4302	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{2xz^2}{y}+\frac{xz^4}{y^2}+y+6z+\frac{13z^2}{y}+\frac{8z}{y}+\frac{8z^3}{y^2}+\frac{10}{x}+\frac{2}{xz}+\frac{34z}{xy}+\frac{12}{xy}+\frac{28z^2}{xy^2}+\frac{6}{x^2z}+\frac{46}{x^2y}+\frac{8}{x^2yz}+\frac{56z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{34}{x^3yz}+\frac{2}{x^3yz^2}+\frac{70}{x^3y^2}+\frac{13}{x^4yz^2}+\frac{56}{x^4y^2z}+\frac{2}{x^5yz^3}+\frac{28}{x^5y^2z^2}+\frac{8}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	4175: $\left(\frac{(xy^2z+(yz+1)^2)(xy^3z^2+(yz+1)^4)}{x^2y^4z^3}, \frac{x^3y^5z^3}{(xy^2z+(yz+1)^2)(xy^3z^2+(yz+1)^4)}, \frac{x^2y^3z^2}{(xy^2z+(yz+1)^2)(xy^3z^2+(yz+1)^4)}\right)$

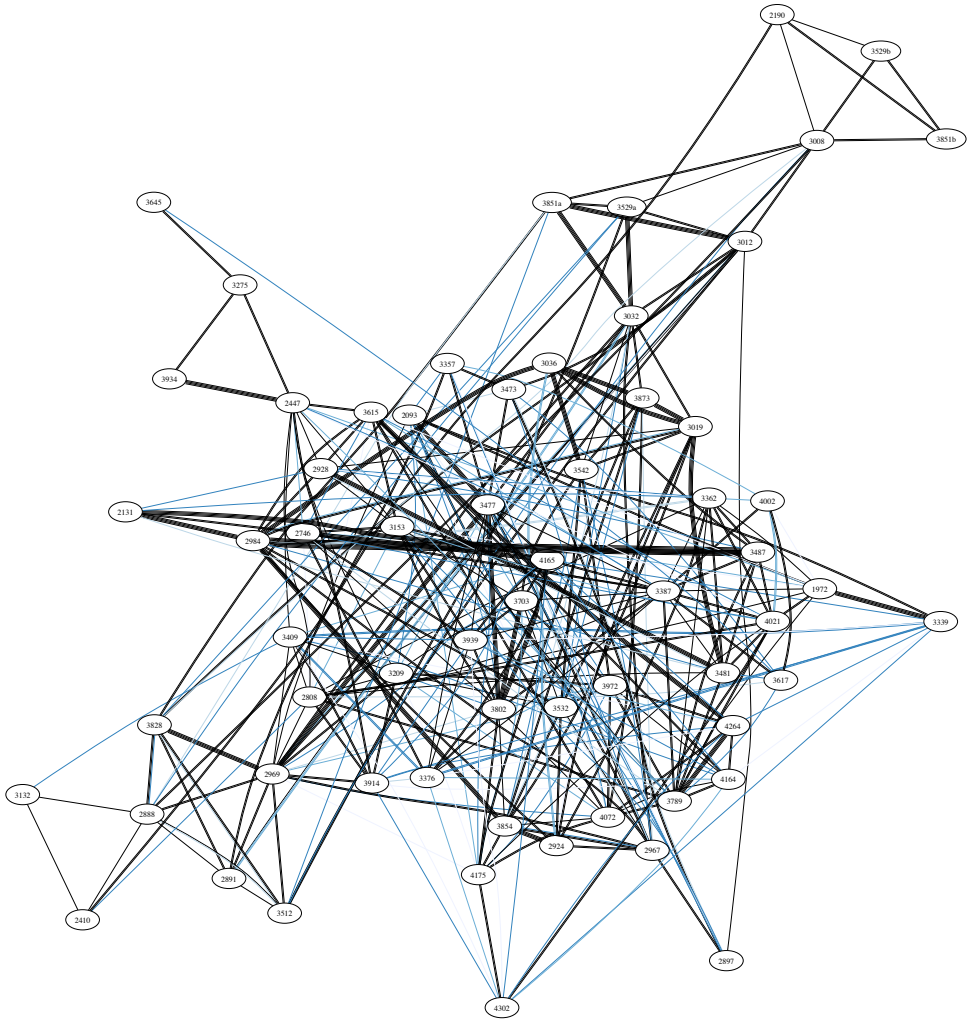
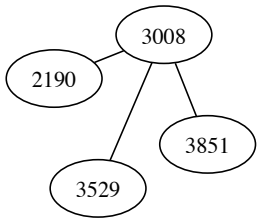
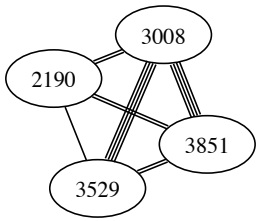


Figure 145b. All mutations between Minkowski polynomials in bucket 145

Bucket 146



(A) A spanning tree consisting of width-2 mutations



(B) All mutations are of width 2

Figure 146. Mutations between Minkowski polynomials in bucket 146

Table 146. Laurent polynomials and selected mutations for bucket 146.

Node	Laurent polynomial	Mutations from Figure 146a
2190	$xz^2+2xz+x+y+\frac{y}{z}+3z+\frac{2}{z}+\frac{1}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xyz}+\frac{1}{x^2z}$	3008: $\left(z(xz+1), y, \frac{x}{xz+1}\right)$
3008	$xz^2+2xz+x+yz+y+3z+\frac{2}{z}+\frac{z}{y}+\frac{1}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{1}{xy}+\frac{1}{xyz}$	2190: $\left(z(xz+1), \frac{1}{y}, \frac{1}{xz}\right)$ 3529: $\left(\frac{xz+y(z+1)^2}{y^2z}, \frac{1}{z}, \frac{y}{x}\right)$ 3851: $\left(\frac{(yz+1)(1+z(y+1)^2)}{xy^2z^2}, \frac{1}{y}, yz\right)$
3529	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{4}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3008: $\left(\frac{y+z(y+1)^2}{xyz^2}, \frac{y+z(y+1)^2}{xyz}, \frac{1}{y}\right)$
3851	$x+y^2z+3yz+y+z+\frac{1}{y}+\frac{2}{yz}+\frac{y^3z^2}{x}+\frac{2y^2z^2}{x}+\frac{3y^2z}{x}+\frac{yz^2}{x}+\frac{7yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{9}{x}+\frac{1}{xz}+\frac{3}{xy}+\frac{5}{xyz}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3008: $\left(\frac{(z+1)(y+z(y+1)^2)}{xyz^2}, \frac{1}{y}, yz\right)$

Bucket 147

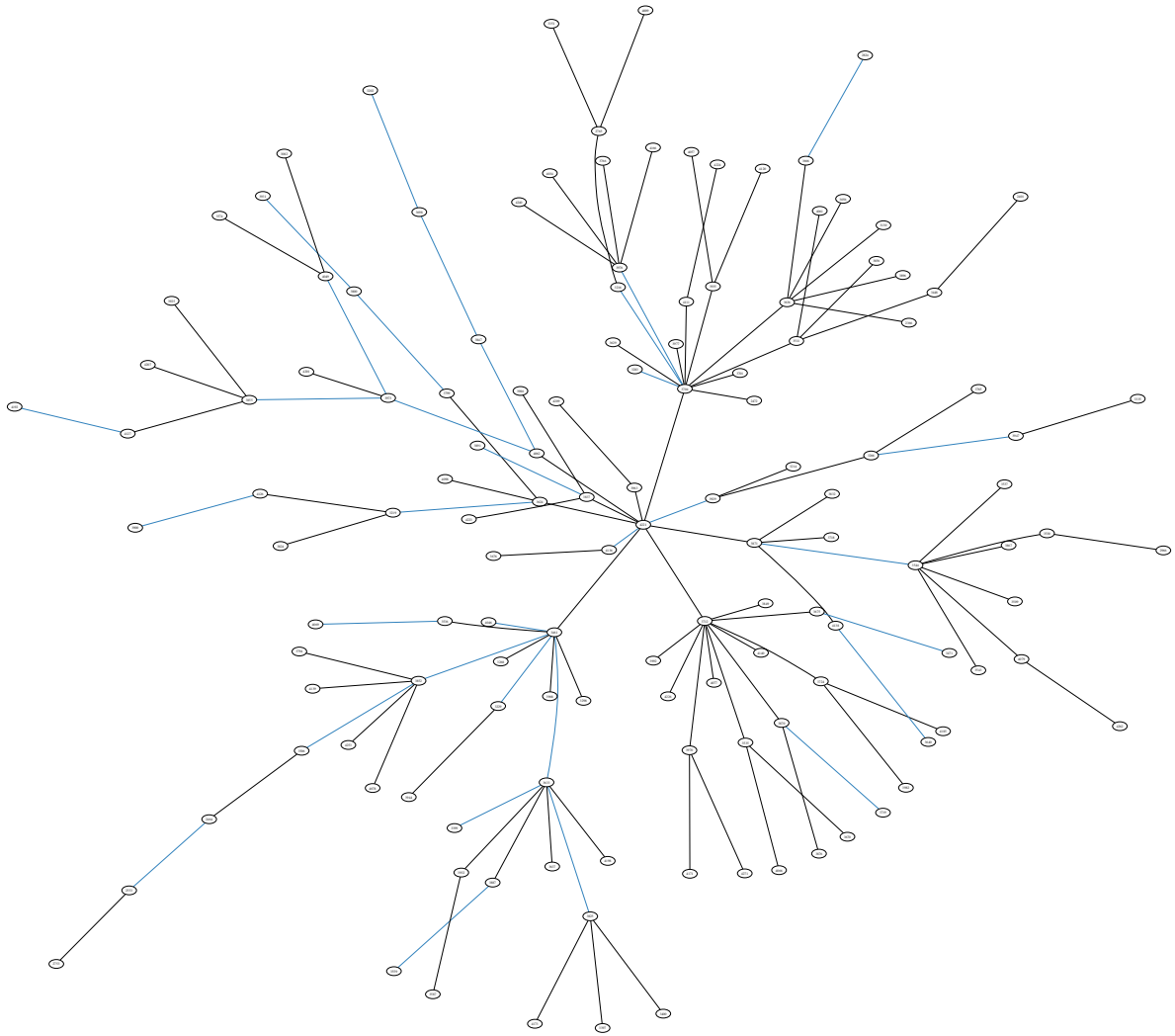


Figure 147a. Selected width-2 and width-3 mutations between Minkowski polynomials in bucket 147

Table 147. Laurent polynomials and selected mutations for bucket 147.

Node	Laurent polynomial	Mutations from Figure 147a
2366	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{4x}{yz}+y+z+\frac{2}{z}+\frac{6}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	3636: $\left(x, \frac{y(x+z)^2}{x^2}, z\right)$
2401	$xz^2+2xz+x+\frac{xz}{y}+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{3}{xyz}+\frac{1}{x^2yz^2}$	3448: $\left(x, \frac{xyz}{xz+1}, \frac{1}{xz}\right)$
2464	$\frac{xy}{z}+x+\frac{3x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{y^2z}+y+z+\frac{3}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{2}{xy}+\frac{3z}{x^2}+\frac{z}{x^3}$	2553: $\left(\frac{x+yz^2}{xyz}, \frac{x+yz^2}{yz}, \frac{x+yz^2}{xy^2z^3}\right)$ 3506: $\left(x, z, \frac{xy}{x+1}\right)$
2472	$xy^2+\frac{xy^2}{z}+2xy+\frac{2xy}{z}+x+\frac{x}{z}+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^3}$	3704: $\left(z, \frac{x}{yz}, \frac{x^3}{(x+y)^2}\right)$
2553	$xz+x+\frac{x}{yz}+yz^3+3yz^2+3yz+y+z+\frac{3}{z}+\frac{1}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{z}{x}+\frac{1}{x}+\frac{1}{xyz}$	2464: $\left(\frac{y}{x}, \frac{(x^2+yz)^2}{x^3y^2z}, \frac{x^2y}{x^2+yz}\right)$ 2753: $\left(\frac{x(yz^2+yz+1)}{yz}, y, \frac{1}{yz}\right)$
2753	$xz^2+2xz+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^3+3yz^2+3yz+y+z+\frac{3}{z}+\frac{1}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{1}{x}$	2553: $\left(\frac{xyz}{yz^2+yz+1}, y, \frac{1}{yz}\right)$
2765	$xy^2+2xy+\frac{2xy}{z}+x+\frac{2x}{z}+\frac{x}{z^2}+2y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{z}{x^2y^2}$	3216: $\left(\frac{x^2z}{xz+x+yz}, \frac{xz+x+yz}{xyz}, z\right)$ 3351: $\left(\frac{x+y(xz+1)^2}{x^2}, \frac{1}{yz}, \frac{x+y(xz+1)^2}{xy}\right)$ 4009: $\left(\frac{x^3yz^2}{z+y(xz+1)^2}, \frac{1}{xz}, \frac{xz}{z+y(xz+1)^2}\right)$
2824	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{3yz}{x}+\frac{3}{x}+\frac{1}{xyz}$	3666: $\left(\frac{yz(yz+1)}{x}, y, z\right)$
2966	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{3yz}{x}+\frac{3}{x}+\frac{1}{xyz}$	3530: $\left(\frac{yz(yz+1)}{x}, y, z\right)$
3056	$xz^2+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+4z+\frac{4z}{y}+\frac{3y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{3y}{x^2z^2}+\frac{4}{x^2z}+\frac{y}{x^3z^3}+\frac{1}{x^3z^2}$	3636: $\left(\frac{(x+z)^2}{yz^2}, \frac{x^3}{(x+z)^2}, \frac{xyz}{(x+z)^2}\right)$
3082	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{4x}{yz^2}+\frac{2x}{y^2z^2}+y+z+\frac{6}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{4y}{x}+\frac{2}{x}+\frac{y^2z}{x^2}$	4049: $\left(z, \frac{x^3yz}{(x+y)(xyz+(x+y)^2)}, \frac{(x+y)(xyz+(x+y)^2)}{x^2y^2}\right)$
3130	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{z}{x^2}$	3636: $\left(\frac{y(x+z)}{x}, x, \frac{yz(x+z)}{x^2}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3202	$xz^2+2xz+x+\frac{xz}{y}+yz^2+2yz+y+3z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{1}{xyz}$	3698: $\left(\frac{x^2}{x+y}, \frac{xz}{x+y}, \frac{y}{x}\right)$
3214	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3929: $\left(\frac{(yz^2+yz+1)(1+y(z+1)^2)}{xyz}, \frac{(yz^2+yz+1)(1+y(z+1)^2)}{xy^2z^2}, \frac{(yz^2+yz+1)(1+y(z+1)^2)}{xyz^2}\right)$
3216	$x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	2765: $\left(\frac{xyz+xy+z}{yz}, \frac{xyz+xy+z}{xy^2z}, z\right)$ 3704: $\left(\frac{z(x+y)}{x}, \frac{yz(x+y)}{x^2}, \frac{x^2}{x+y}\right)$
3219	$xy^2+2xy+x+yz+2y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{z}{x}+\frac{1}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	3624: $\left(y, z, \frac{x}{z+1}\right)$ 3824: $\left(\frac{x^2}{x+yz+y}, \frac{x+yz+y}{xy}, \frac{xyz}{x+yz+y}\right)$ 4126: $\left(\frac{xy^2}{(y+z)(yz+y+z)}, \frac{(y+z)(yz+y+z)}{xyz}, \frac{xy^2z}{(y+z)(yz+y+z)}\right)$
3229	$xz+x+\frac{3xz}{y}+\frac{2x}{y}+\frac{3xz}{y^2}+\frac{x}{y^2}+\frac{xz}{y^3}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{y^2}{x^2z}$	3461: $\left(\frac{x(x+y)}{y^2z}, \frac{x+y}{yz}, \frac{x+y}{x^2}\right)$ 3944: $\left(\frac{(y^2+yz+z)^2}{xy^2z}, y, \frac{xy^2z^2}{(y^2+yz+z)^2}\right)$
3266	$xz^2+2xz+x+\frac{xz^2}{y}+\frac{2xz}{y}+\frac{x}{y}+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{xz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{y}{x^2z^2}$	3765: $\left(\frac{(z+1)(yz+y+1)}{xyz^2}, y, \frac{xyz}{(z+1)(yz+y+1)}\right)$ 3929: $\left(\frac{(yz+y+1)(yz^2+yz+1)}{xy}, \frac{(yz+y+1)(yz^2+yz+1)}{xy^2z^2}, \frac{1}{z}\right)$ 3947: $\left(\frac{(xz+y)^2}{x^2yz^2}, \frac{xy^2}{(xz+y)^2}, \frac{xy^2z}{(xz+y)^2}\right)$
3268	$\frac{x^2}{yz}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	3461: $\left(\frac{x^2}{x+yz}, \frac{xy}{x+yz}, \frac{xyz}{x+yz}\right)$
3283	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	3704: $\left(y, \frac{xyz}{x+yz}, \frac{y(x+yz)}{x^2}\right)$
3298	$xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z^2}+2yz+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{yz^2}{x^2}$	3461: $\left(\frac{y^2z}{x+yz+y}, \frac{1}{z}, \frac{xyz}{x+yz+y}\right)$
3335	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{6}{x}+\frac{2}{xz}+\frac{6}{xyz}+\frac{1}{xy^2z^2}+\frac{4}{x^2z}+\frac{2}{x^2yz^2}+\frac{1}{x^3z^2}$	3947: $\left(\frac{xy^2}{xy+xz+y}, x, \frac{xy+xz+y}{x^2yz}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3351	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{2}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	2765: $\left(\frac{xy^2z+(xy+z)^2}{x^2y^2z}, \frac{xy^2z+(xy+z)^2}{xy^2z^2}, \frac{xyz^2}{xy^2z+(xy+z)^2}\right)$
3397	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	3825: $\left(\frac{(x+y)^2}{xyz}, \frac{(x+y)^2}{xy^2}, \frac{x^2y}{(x+y)^2}\right)$
3399	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	3633: $\left(x, \frac{y^2}{y+z}, \frac{y+z}{yz}\right)$
3400	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{yz}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{3}{y}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	3825: $\left(x, \frac{z(x+y)}{x}, y\right)$
3448	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{z^2}{y}+\frac{3z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	2401: $\left(x, y(z+1), \frac{1}{xz}\right)$ 3511: $\left(\frac{xyz+x+yz}{xy}, x, \frac{x}{yz}\right)$
3461	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	3229: $\left(\frac{x+y}{xz}, \frac{y(x+y)}{x^2z}, \frac{x+y}{y^2}\right)$ 3268: $\left(x+z, \frac{y(x+z)}{x}, \frac{z}{y}\right)$ 3298: $\left(\frac{z(xy+x+yz)}{x}, xy+x+yz, \frac{1}{y}\right)$ 3536: $\left(\frac{(y+z)(x+y+z)}{xyz}, \frac{(y+z)(x+y+z)}{yz^2}, \frac{y}{x}\right)$ 3633: $\left(y, x, \frac{z(y+1)}{y}\right)$ 3852: $\left(x, z, \frac{x(x+z)}{yz^2}\right)$ 3968: $\left(\frac{xyz}{yz+1}, \frac{x}{yz+1}, y\right)$ 4046: $\left(y, z, \frac{(y+z)^2}{xz^2}\right)$ 4221: $\left(y, \frac{xy^3}{(y+1)(xz+y^2+y)}, \frac{(y+1)(xz+y^2+y)}{x^2yz}\right)$
3471	$x+\frac{2x}{z}+\frac{x}{z^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{2z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}+\frac{z}{x^2}+\frac{2z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3675: $\left(z, \frac{x^2z}{xz+y}, \frac{xyz}{xz+y}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3506	$x+\frac{x}{z}+\frac{xz}{y}+\frac{3x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{2}{xz}+\frac{y}{x^2}$	2464: $\left(y, \frac{x(y+1)}{z}, x\right)$ 3852: $\left(\frac{xyz}{x+yz}, z, \frac{yz}{x}\right)$
3509	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	3544: $\left(\frac{(x+yz)^2}{x^2z}, y, \frac{x}{z}\right)$
3511	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{3x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	3448: $\left(y, \frac{y+z+1}{xz}, \frac{xy}{y+z+1}\right)$ 3704: $\left(\frac{(x+y)^2(x+yz)}{x^2y^2z}, \frac{(x+y)^2(x+yz)}{x^3y}, \frac{x^2}{y^2z}\right)$ 3856: $\left(z, \frac{(x+y)(xz+x+y)}{x^2y}, \frac{x^3z}{(x+y)(xz+x+y)}\right)$ 4061: $\left(y, \frac{(yz+1)^2(y^2z+yz+1)}{xy^2z^2}, \frac{xy^4z^3}{(yz+1)^2(y^2z+yz+1)}\right)$
3530	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}$	2966: $\left(\frac{yz(yz+1)}{x}, y, z\right)$ 3544: $\left(\frac{yz(y+1)}{x^2}, y, \frac{z}{x}\right)$
3535	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}$	3670: $\left(\frac{xyz}{yz+y+z}, y, z\right)$ 3712: $\left(y, z, \frac{y+z}{x}\right)$ 4066: $\left(\frac{xy^2z}{(y+1)(yz+y+z)}, y, z\right)$
3536	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{x}{yz}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{z}{xy}$	3461: $\left(\frac{(x+yz)(x+yz+y)}{x^2yz}, \frac{(x+yz)(x+yz+y)}{x^2y}, \frac{(x+yz)(x+yz+y)}{xy^2z}\right)$ 4069: $\left(\frac{xz^2}{(z+1)^2}, \frac{yz^2}{(z+1)^2}, z\right)$
3537	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	3544: $\left(\frac{x(x+yz)}{yz}, \frac{x+yz}{y}, \frac{x(x+yz)}{y^2z}\right)$
3543	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	3544: $\left(\frac{y(x+yz)}{x^2}, \frac{x+yz}{xz}, y\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3544	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	3509: $\left(\frac{(y+z)^2}{xz}, y, \frac{(y+z)^2}{xz^2}\right)$ 3530: $\left(\frac{yz(y+1)}{x}, y, \frac{yz^2(y+1)}{x}\right)$ 3537: $\left(\frac{xy}{y+z}, \frac{x}{z}, \frac{y^2}{y+z}\right)$ 3543: $\left(\frac{z(x+y)}{xy}, z, \frac{x+y}{y^2}\right)$ 3867: $\left(\frac{(z+1)(x+y)}{xy}, z, \frac{(z+1)(x+y)}{y^2z}\right)$ 3871: $\left(\frac{yz}{x+z}, \frac{xy}{x+z}, \frac{z^2}{x+z}\right)$ 4079: $\left(\frac{xy^2z}{(y+z)(yz+y+z)}, y, \frac{xy^2}{(y+z)(yz+y+z)}\right)$
3559	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{3}{xy^2z^2}+\frac{3}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{3}{x^2y^2z^3}+\frac{1}{x^3y^2z^4}$	3887: $\left(\frac{x^3}{(x+y^2z)^2}, y, \frac{(x+y^2z)^2}{x^2y^2z}\right)$
3574	$xz^2+2xz+x+y+3z+\frac{2}{z}+\frac{2z^2}{y}+\frac{4z}{y}+\frac{2}{y}+\frac{y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	4049: $\left(\frac{x^2}{x+y}, z, \frac{y}{x}\right)$
3587	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4y}{x}+\frac{3y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3932: $\left(\frac{(x+y+z)^2}{xyz}, \frac{(x+y+z)^2}{xy^2}, \frac{(x+y+z)^2}{x^2y}\right)$
3624	$x+\frac{x}{yz}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	3219: $(z(y+1), x, y)$ 3799: $\left(y, \frac{x^2y}{xy+yz+z}, \frac{xy+yz+z}{xyz}\right)$ 4098: $\left(y, \frac{xy^4}{(y^2+yz+z)^2}, \frac{(y^2+yz+z)^2}{xy^3z}\right)$ 4221: $\left(y, \frac{(y+1)(xz+y^2+y)(xyz+xz+y)}{x^3y^2z^2}, \frac{xz}{y}\right)$
3629	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{4x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{6}{y}+\frac{4}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{6}{xy}+\frac{2z}{x^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{z^2}{x^3y}$	3704: $\left(x, \frac{(x+y)^2}{y^2z}, y\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3633	$x+\frac{2xz}{y}+\frac{2x}{y}+\frac{xz^2}{y^2}+\frac{4xz}{y^2}+\frac{x}{y^2}+\frac{2xz^2}{y^3}+\frac{2xz}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{4}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{y^2}{x^2z}$	3399: $\left(x, \frac{yz+1}{z}, \frac{yz+1}{yz^2}\right)$ 3461: $\left(y, x, \frac{xz}{x+1}\right)$ 3637: $\left(\frac{xyz+1}{x}, \frac{xyz+1}{xz}, \frac{xyz+1}{x^2yz^3}\right)$ 3825: $\left(\frac{x^2}{x+z}, y, \frac{yz}{x}\right)$ 3887: $\left(\frac{(xyz+x+y^2z)^2}{x^2y^3z^2}, \frac{(xyz+x+y^2z)^2}{x^2y^2z}, \frac{(xyz+x+y^2z)^2}{x^3}\right)$ 3932: $\left(\frac{(x+z)(x+y+z)}{x^2z}, \frac{(x+z)(x+y+z)}{xyz}, \frac{(x+z)(x+y+z)}{xy^2}\right)$ 4198: $\left(\frac{(xyz^2+1)(xyz^2+xyz+1)^2}{x^3y^2z^4}, \frac{(xyz^2+1)(xyz^2+xyz+1)^2}{x^3y^2z^3}, \frac{(xyz^2+1)(xyz^2+xyz+1)^2}{x^4y^3z^4}\right)$
3636	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{yz}+y+z+\frac{2}{z}+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{2yz^2}{x^3}+\frac{2yz}{x^3}+\frac{yz^2}{x^4}$	2366: $\left(x, \frac{x^2y}{(x+z)^2}, z\right)$ 3056: $\left(\frac{y(xz+1)^2}{x^2z^2}, \frac{(xz+1)^2}{x}, \frac{y(xz+1)^2}{x^3z^3}\right)$ 3130: $\left(y, \frac{x^2}{x+z}, \frac{yz}{x}\right)$ 3666: $\left(\frac{y(x+z)}{x}, \frac{y^2z^2(x+z)}{x^2}, \frac{x+z}{xz}\right)$ 3704: $\left(x, \frac{x^3}{y^2z(x+1)}, y\right)$ 3896: $\left(\frac{(yz+1)^2(x+y)}{xy^2z}, \frac{(yz+1)^2(x+y)}{x^2}, \frac{(yz+1)^2(x+y)}{xy^3z^2}\right)$
3637	$xz^2+2xz+x+yz+y+2z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{4}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z^2}+\frac{2}{x^2yz^2}+\frac{2}{x^2yz^3}+\frac{2}{x^2y^2z^3}+\frac{1}{x^3y^2z^4}$	3633: $\left(\frac{xz+y^2}{x^2z}, \frac{y^3}{xz+y^2}, \frac{x}{y}\right)$
3640	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	4138: $\left(y, \frac{(x+z)^2}{xz^2}, \frac{(x+z)^2}{x^2z}\right)$
3666	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{3yz}{x}+\frac{4z}{x}+\frac{2}{x}+\frac{2}{xy}+\frac{y^2z^3}{x^2}+\frac{2yz^2}{x^2}+\frac{z}{x^2}$	2824: $\left(\frac{yz(yz+1)}{x}, y, z\right)$ 3636: $\left(\frac{x^2+yz}{yz^2}, \frac{x^3}{x^2+yz}, \frac{x^2+yz}{x^2z}\right)$
3670	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3535: $\left(\frac{x(yz+y+z)}{yz}, y, z\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3675	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{4}{x}+\frac{3}{xz}+\frac{2}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2z}+\frac{1}{x^2z}$	3471: $\left(\frac{xy+z}{x},\frac{z(xy+z)}{xy},x\right)$ 3712: $\left(x,z,\frac{y(x+1)}{x}\right)$
3676	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	4136: $\left(\frac{(z+1)(y+z)^2(y+z+1)}{xyz^2},\frac{(z+1)(y+z)^2(y+z+1)}{xy^2z^2},z\right)$
3698	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3202: $(x(z+1),xz(z+1),y(z+1))$ 3847: $\left(y,\frac{xyz}{x+yz},\frac{yz}{x}\right)$
3701	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{2z}{x^2}+\frac{z}{x^2y}$	3704: $\left(x,\frac{z(x+y)}{x},y\right)$
3704	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	2472: $\left(\frac{z(xy+1)^2}{x^2y^2},\frac{z(xy+1)^2}{x^3y^3},x\right)$ 3216: $\left(\frac{z(x+y)}{x},\frac{yz(x+y)}{x^2},\frac{x^2}{x+y}\right)$ 3283: $\left(\frac{x+yz}{z},x,\frac{y(x+yz)}{x^2}\right)$ 3511: $\left(\frac{(x+y)(x+yz)^2}{x^2y^2z},\frac{(x+y)(x+yz)^2}{xy^3z^2},\frac{y^2z}{x^2}\right)$ 3629: $\left(x,z,\frac{(x+z)^2}{yz^2}\right)$ 3636: $\left(x,z,\frac{x^3}{yz^2(x+1)}\right)$ 3701: $\left(x,z,\frac{xy}{x+z}\right)$ 3935: $\left(x,z,\frac{x^2y}{(x+1)(x+z)}\right)$ 3976: $\left(\frac{xy}{y+z},\frac{xz}{y+z},\frac{y+z}{z^2}\right)$ 3977: $\left(\frac{xyz}{yz+1},\frac{x}{yz+1},yz^2\right)$ 4111: $\left(y,z,\frac{xy^3}{(y+1)(y+z)^2}\right)$ 4221: $\left(y,\frac{(y+1)(xz+y)^2}{x^2yz},\frac{x^3yz^2}{(y+1)(xz+y)^2}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3712	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{2z}{xy}+\frac{1}{xy}$	3535: $\left(\frac{x+y}{z},x,y\right)$ 3675: $\left(x,\frac{xz}{x+1},y\right)$ 3724: $\left(\frac{(x+1)(x+z)}{yz},z,x\right)$ 3849: $\left(\frac{(y+1)(y+z)^2}{xyz},z,y\right)$ 3870: $\left(y,\frac{xz}{z+1},z\right)$ 3970: $\left(x,\frac{yz^2}{(z+1)^2},z\right)$ 3992: $\left(y,\frac{xy+x+yz}{x^2},\frac{yz}{x}\right)$ 4077: $\left(y,\frac{xyz}{(z+1)(y+1)},z\right)$ 4140: $\left(\frac{(z+1)^2(y+z)^2}{xyz^2},y,z\right)$ 4221: $\left(y,\frac{xy^3}{(xz+y)(xz+y^2+y)},\frac{x^2y^2z}{(xz+y)(xz+y^2+y)}\right)$ 4226: $\left(y,\frac{xyz^2}{(z+1)^2(y+1)},z\right)$
3718	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3871: $\left(z,x,\frac{x+z}{y}\right)$
3719	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3870: $\left(y,\frac{xy}{y+1},\frac{y+1}{z}\right)$
3724	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{1}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3712: $\left(z,\frac{(z+1)(y+z)}{xy},y\right)$ 3982: $\left(z,\frac{y(z+1)^2}{xz},\frac{xz^2}{(z+1)^2}\right)$ 4185: $\left(y,\frac{xyz^2}{(z+1)^2(y+1)},\frac{(z+1)^2(y+1)}{xz}\right)$
3765	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{6}{xy}+\frac{6}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	3266: $\left(\frac{(xz+1)(xyz+xz+y)}{xy},y,\frac{1}{xz}\right)$
3766	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{2z^2}{xy}+\frac{6z}{xy}+\frac{2z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3976: $\left(x,\frac{xy^2}{xy+y+z},\frac{xyz}{xy+y+z}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3794	$\frac{xy}{z}+x+\frac{3x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{y^2z}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2z}{x}+\frac{3}{x}+\frac{5}{xy}+\frac{3}{xyz}+\frac{3}{xy^2z}+\frac{z}{x^2}+\frac{2}{x^2y}+\frac{1}{x^2y^2z}$	3852: $\left(\frac{yz}{x}, x, \frac{xyz+x+yz}{xz}\right)$
3799	$x+\frac{2x}{z}+\frac{x}{z^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{4z}{xy}+\frac{6}{xy}+\frac{2z}{xy^2}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^2y^3}$	3624: $\left(\frac{xyz+x+1}{xz}, x, \frac{xyz+x+1}{xyz^2}\right)$ 3800: $\left(\frac{x^2z}{xz+1}, \frac{xz+1}{x}, \frac{xyz}{xz+1}\right)$
3800	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{4}{x}+\frac{6}{xz}+\frac{3}{xyz}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{3}{x^2z}+\frac{y}{x^3z}$	3799: $\left(\frac{xy+1}{y}, \frac{z(xy+1)}{xy}, \frac{xy^2}{xy+1}\right)$ 3931: $\left(y(z+1), yz(z+1), \frac{x}{z+1}\right)$
3824	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{yz}{x^2}+\frac{3y}{x^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}$	3219: $\left(\frac{xy+yz+1}{y}, \frac{xy+yz+1}{xy^2}, yz\right)$
3825	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{5}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3397: $\left(\frac{(yz+1)^2}{y}, \frac{(yz+1)^2}{y^2z}, \frac{(yz+1)^2}{xyz}\right)$ 3400: $\left(x, z, \frac{xy}{x+z}\right)$ 3633: $\left(\frac{x(y+z)}{y}, y, \frac{xz(y+z)}{y^2}\right)$ 4173: $\left(x, y, \frac{x^3y^2z}{(x+y)(xy+x+y)^2}\right)$
3832	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3871: $\left(x, z, \frac{(xz+x+z)^2}{xyz^2}\right)$
3837	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	3891: $\left(\frac{xy}{y+1}, y, \frac{1}{z}\right)$ 3986: $\left(x, \frac{(xz+y)(xy+xz+y)}{xy^2z}, \frac{xy^3}{(xz+y)(xy+xz+y)}\right)$ 4221: $\left(\frac{(y+1)(xz+y)^2(xyz+xz+y)}{x^3y^2z^2}, y, \frac{(y+1)(xz+y)^2(xyz+xz+y)}{x^2y^4z}\right)$ 4223: $\left(x, \frac{x^2y^2z}{x^2yz+(x+yz)^2}, \frac{x^2yz+(x+yz)^2}{x^2y}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3847	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3698: $\left(\frac{y(z+1)}{z}, x, \frac{y(z+1)}{x}\right)$ 4062: $\left(z, x, \frac{yz}{x+z}\right)$
3849	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3712: $\left(\frac{(z+1)(y+z)^2}{xyz}, z, y\right)$
3852	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{2x}{y^2z^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{5}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3461: $\left(x, \frac{x(x+y)}{y^2z}, y\right)$ 3506: $\left(\frac{x(z+1)}{z}, \frac{x(z+1)}{y}, y\right)$ 3794: $\left(y, \frac{xyz}{xy+x+1}, \frac{xy+x+1}{z}\right)$ 4078: $\left(y, \frac{xz^2}{(z+1)^2}, \frac{y(z+1)^2}{xz}\right)$ 4139: $\left(x, \frac{xyz^2}{(z+1)(xz+z+1)}, \frac{(z+1)(xz+z+1)}{yz}\right)$ 4253: $\left(y, \frac{xyz^3}{(z+1)^2(yz+z+1)}, \frac{(z+1)^2(yz+z+1)}{xz^2}\right)$
3855	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{2y^2}{x^2z}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{y^2}{x^3z}$	3925: $\left(\frac{x^2}{x+yz}, \frac{xyz}{x+yz}, y\right)$ 3973: $\left(y, \frac{xyz}{x+yz}, \frac{yz^2}{x+yz}\right)$ 4127: $\left(x, y, \frac{(x+y)(xy+x+y)^2}{x^3yz}\right)$ 4207: $\left(\frac{x^3z^2}{(xz+1)(xz+y)}, \frac{x^2yz}{(xz+1)(xz+y)}, y\right)$
3856	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{2y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{6}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{4y}{x^2z}+\frac{y^2}{x^3z}$	3511: $\left(\frac{(x+yz)(x+y^2z+yz)}{x^2yz}, \frac{(x+yz)(x+y^2z+yz)}{xy^2z^2}, y\right)$
3867	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3544: $\left(\frac{(y+1)(x+yz)}{x^2}, \frac{(y+1)(x+yz)}{xyz}, y\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3870	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3712: $\left(\frac{y(z+1)}{z}, x, z\right)$ 3719: $\left(\frac{y(x+1)}{x}, x, \frac{x+1}{z}\right)$ 3876: $\left(\frac{x+z+1}{y}, x, z\right)$
3871	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	3544: $\left(\frac{yz(x+y)}{x^2}, x+y, \frac{z(x+y)}{x}\right)$ 3718: $\left(y, \frac{x+y}{z}, x\right)$ 3832: $\left(y, \frac{(xy+x+y)^2}{xy^2z}, x\right)$ 4138: $\left(z, \frac{(x+z)(xz+x+z)^2}{x^2yz^2}, x\right)$ 4221: $\left(\frac{(xz+y)(xz+y^2+y)(xyz+xz+y)}{x^2y^3z}, y, \frac{(xz+y)(xz+y^2+y)(xyz+xz+y)}{x^3y^2z^2}\right)$
3876	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z}{xy}+\frac{2}{xy}+\frac{1}{xyz}$	3870: $\left(y, \frac{y+z+1}{x}, z\right)$
3887	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{4y^2z}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{9}{x}+\frac{4}{xyz}+\frac{3y^3z^2}{x^2}+\frac{2y^3z}{x^2}+\frac{9y^2z}{x^2}+\frac{6y}{x^2}+\frac{3y^4z^2}{x^3}+\frac{4y^3z}{x^3}+\frac{y^5z^2}{x^4}$	3559: $\left(\frac{(xz+1)^2}{xz^2}, y, \frac{(xz+1)^2}{x^2y^2z^3}\right)$ 3633: $\left(\frac{(xy+xz+y^2)^2}{x^2y^2z}, \frac{(xy+xz+y^2)^2}{xy^4}, \frac{y^5}{(xy+xz+y^2)^2}\right)$
3891	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{4}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{7}{x}+\frac{4}{xz}+\frac{8}{xy}+\frac{2}{xyz}+\frac{3}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{6}{x^2z}+\frac{4}{x^2yz}+\frac{1}{x^2y^2z}$	3837: $\left(\frac{x(y+1)}{y}, y, \frac{1}{z}\right)$
3896	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{5yz}{x}+\frac{4y}{x}+\frac{9}{x}+\frac{2}{xz}+\frac{7}{xyz}+\frac{2}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	3636: $\left(\frac{(x+z)^2(x^2+yz)}{x^2yz^2}, \frac{(x+z)^2(x^2+yz)}{x^4z}, \frac{x^5}{(x+z)^2(x^2+yz)}\right)$
3900	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y^2}{xz}+\frac{4y}{x}+\frac{3y}{xz}+\frac{8}{x}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{y^3}{x^2z^2}+\frac{6y^2}{x^2z}+\frac{8y}{x^2z}+\frac{3}{x^2z}+\frac{4y^3}{x^3z^2}+\frac{3y^2}{x^3z^2}+\frac{y^4}{x^4z^3}$	4126: $\left(x, \frac{y^2}{y+z}, \frac{y^3}{xz(y+z)}\right)$
3925	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{1}{y^2z}+\frac{3yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{7}{x}+\frac{4}{xy}+\frac{y^2z}{x^2}+\frac{2yz^2}{x^2}+\frac{6yz}{x^2}+\frac{6z}{x^2}+\frac{2y^2z^2}{x^3}+\frac{4yz^2}{x^3}+\frac{y^2z^3}{x^4}$	3855: $\left(x+y, z, \frac{y(x+y)}{xz}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3929	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{yz}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{z^2}{x}+\frac{5z}{x}+\frac{8}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	3214: $\left(x+y+z, \frac{z}{y}, \frac{x}{z}\right)$ 3266: $\left(\frac{(xz+x+y)(xz^2+xz+y)}{x^2yz^2}, \frac{xz^2}{y}, \frac{1}{z}\right)$ 4221: $\left(x, \frac{y^3}{(xz+y)^2}, \frac{xz}{y}\right)$
3931	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz^3}{x}+\frac{2yz^2}{x}+\frac{yz}{x}+\frac{3z^2}{x}+\frac{6z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	3800: $\left(\frac{z(x+y)}{x}, \frac{x^2}{x+y}, \frac{y}{x}\right)$
3932	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{4z}{y}+\frac{5}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{5}{x}+\frac{2z^2}{xy}+\frac{7z}{xy}+\frac{3z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3587: $\left(\frac{(xy+xz+yz)^2}{x^2y^2z}, \frac{(xy+xz+yz)^2}{x^2yz^2}, \frac{(xy+xz+yz)^2}{x^3yz}\right)$ 3633: $\left(\frac{(xz+y^2)(xy+xz+y^2)}{xy^3z}, \frac{(xz+y^2)(xy+xz+y^2)}{x^2y^2z}, \frac{(xz+y^2)(xy+xz+y^2)}{xy^4}\right)$
3935	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{2x}{yz^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{2z}{x^2}+\frac{2z}{x^2y}+\frac{3}{x^2y}+\frac{z}{x^3y}$	3704: $\left(x, \frac{z(x+1)(x+y)}{x^2}, y\right)$ 4057: $\left(\frac{xyz+x+y}{xy}, \frac{x^2yz}{xyz+x+y}, \frac{xyz+x+y}{x^2}\right)$ 4120: $\left(\frac{(y+z)(x+y+z)}{xyz}, \frac{x^2y}{(y+z)(x+y+z)}, \frac{(y+z)(x+y+z)}{xy^2}\right)$
3944	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{3}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{7}{x}+\frac{3}{xz}+\frac{4z}{xy}+\frac{8}{xy}+\frac{6z}{xy^2}+\frac{3}{xy^2}+\frac{4z}{xy^3}+\frac{z}{xy^4}$	3229: $\left(\frac{(xyz+xz+y^2)^2}{x^2y^2z}, y, xz\right)$
3947	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{2xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{5xz^2}{y^3}+y+z+\frac{6z}{y}+\frac{6}{y}+\frac{10z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{10}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{y}{x^3z^2}$	3266: $\left(\frac{y(xz+1)^2}{x^2z^2}, \frac{(xz+1)^2}{x}, \frac{z}{y}\right)$ 3335: $\left(y, \frac{xyz+xz+1}{yz}, \frac{xyz+xz+1}{xy^2z^2}\right)$
3963	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{4z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{y^2}{x^2z}+\frac{4y}{x^2z}+\frac{4}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	4209: $\left(x, \frac{x^2yz}{x^2z+(xz+1)^2}, \frac{x^2yz^2}{x^2z+(xz+1)^2}\right)$ 4221: $\left(\frac{xy}{y+1}, y, \frac{z(y+1)}{y}\right)$
3968	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{7}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z}+\frac{1}{xy^2z^2}$	3461: $\left(x+y, \frac{1}{z}, \frac{x}{y}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
3970	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3712: $\left(x, \frac{y(z+1)^2}{z^2}, z\right)$ 4171: $\left(\frac{xyz}{yz+z+1}, y, z\right)$ 4271: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2}, y, z\right)$
3973	$x+\frac{x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^2z^3}+y+z+\frac{4}{z}+\frac{z}{y}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{yz^2}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{y}{x^2}$	3855: $\left(\frac{y(xz+y)}{xz}, x, \frac{xz+y}{x}\right)$ 4049: $\left(y, \frac{x^2z}{xz+y}, \frac{xz+y}{x}\right)$ 4062: $\left(\frac{yz}{y+1}, x, y\right)$ 4201: $\left(\frac{(xz+1)(xz+y+1)(xz+(y+1)^2)}{x^3yz^2}, \frac{(xz+1)(xz+y+1)(xz+(y+1)^2)}{x^2y^2z}, y\right)$
3976	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	3704: $\left(x+y, \frac{x(x+y)}{y^2z}, \frac{x+y}{yz}\right)$ 3766: $\left(x, \frac{xy+y+z}{x}, \frac{z(xy+y+z)}{xy}\right)$ 4034: $\left(x, \frac{(yz+1)(xyz+yz+1)}{xyz^2}, \frac{(yz+1)(xyz+yz+1)}{xy^2z^3}\right)$ 4166: $\left(x, \frac{xy^2}{xy+y+z}, \frac{xyz}{xy+y+z}\right)$ 4240: $\left(x, \frac{xy^3z^2}{(yz+1)(xyz+yz+1)}, \frac{xy^2z}{(yz+1)(xyz+yz+1)}\right)$
3977	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	3704: $\left(x+y, \frac{x^2}{y^2z}, \frac{yz}{x}\right)$
3982	$x+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3724: $\left(\frac{(x+1)(x+yz)}{xz}, \frac{yz}{x}, x\right)$
3986	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{1}{z}+\frac{4z}{y}+\frac{5}{y}+\frac{4z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{5}{x}+\frac{4}{xz}+\frac{6}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{4}{x^2z}+\frac{y}{x^3z^2}$	3837: $\left(x, \frac{(x+yz)(xyz+x+yz)}{xy^2z}, \frac{(x+yz)(xyz+x+yz)}{xy^3z^2}\right)$
3992	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{2x}{y^2z}+\frac{2x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{5}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3712: $\left(\frac{x+z+1}{y}, x, \frac{z(x+z+1)}{xy}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
4009	$x^3y^2z^2+2x^2y^2z+2x^2yz^2+2x^2yz+xy^2+7xyz+2xy+xz^2+2xz+x+6y+6z+\frac{2y}{xz}+\frac{8}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{4}{x^2z}+\frac{4}{x^2y}+\frac{1}{x^3z^2}+\frac{2}{x^3yz}+\frac{1}{x^3y^2}$	2765: $\left(z+x(y+1)^2, \frac{1}{y(z+x(y+1)^2)}, \frac{xy}{z(z+x(y+1)^2)}\right)$
4034	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{6}{xyz}+\frac{6}{xyz^2}+\frac{2}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{y}{x^2}+\frac{4}{x^2z}+\frac{6}{x^2yz^2}+\frac{4}{x^2y^2z^3}+\frac{1}{x^2y^3z^4}$	3976: $\left(x, \frac{xy^3}{(y+z)(xy+y+z)}, \frac{(y+z)(xy+y+z)}{xy^2z}\right)$
4046	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{3y}{xz^2}+\frac{5}{x}+\frac{8}{xz}+\frac{2z}{xy}+\frac{7}{xy}+\frac{2z}{xy^2}+\frac{y^2}{x^2z^3}+\frac{4y}{x^2z^2}+\frac{6}{x^2z}+\frac{4}{x^2y}+\frac{z}{x^2y^2}$	3461: $\left(\frac{(x+y)^2}{y^2z}, x, y\right)$
4049	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{2y^2}{x^2z}+\frac{3y}{x^2}+\frac{7y}{x^2z}+\frac{3y}{x^2z^2}+\frac{3y^2}{x^3z}+\frac{3y^2}{x^3z^2}+\frac{y^3}{x^4z^2}$	3082: $\left(\frac{(x+yz)(x^2yz+(x+yz)^2)}{x^2yz^2}, \frac{(x+yz)(x^2yz+(x+yz)^2)}{xy^2z^3}, x\right)$ 3574: $(x(z+1), xz(z+1), y)$ 3973: $\left(\frac{x+yz}{z}, x, \frac{yz^2}{x+yz}\right)$
4057	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{2}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{4}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{5}{x}+\frac{6}{xz}+\frac{6}{xyz}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	3935: $\left(\frac{xyz+x+z}{xz}, \frac{xyz+x+z}{x^2}, \frac{x^2yz}{xyz+x+z}\right)$
4061	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{2y}{x}+\frac{5z}{x}+\frac{9}{x}+\frac{1}{xz}+\frac{10}{xy}+\frac{7}{xyz}+\frac{10}{xy^2z}+\frac{2}{xy^2z^2}+\frac{5}{xy^3z^2}+\frac{1}{xy^4z^3}$	3511: $\left(\frac{(x+yz)^2(xyz+x+yz)}{xy^3z^2}, x, \frac{yz}{x^2}\right)$
4062	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2z^2}+y+\frac{y}{z}+z+\frac{4}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	3847: $\left(y, \frac{z(x+y)}{x}, x\right)$ 3973: $\left(y, z, \frac{x(z+1)}{z}\right)$ 4221: $\left(\frac{xy}{xz+y}, y, \frac{x^2z}{xz+y}\right)$
4066	$x+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{4z}{x}+\frac{9}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{6z}{xy}+\frac{9}{xy}+\frac{3}{xyz}+\frac{4z}{xy^2}+\frac{3}{xy^2}+\frac{z}{xy^3}$	3535: $\left(\frac{x(y+1)(yz+y+z)}{y^2z}, y, z\right)$
4069	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{10}{xy}+\frac{10}{xyz}+\frac{5}{xyz^2}+\frac{1}{xyz^3}$	3536: $\left(\frac{x(z+1)^2}{z^2}, \frac{y(z+1)^2}{z^2}, z\right)$
4077	$x+\frac{x}{z}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{7}{xy}+\frac{3}{xyz}+\frac{z^2}{xy^2}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{xy^2z}$	3712: $\left(\frac{y(z+1)(x+1)}{xz}, x, z\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
4078	$x+\frac{x}{y}+\frac{x}{yz}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{1}{xyz^3}$	3852: $\left(\frac{(x+yz)^2}{yz^2}, x, \frac{yz}{x}\right)$
4079	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{9}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	3544: $\left(\frac{(x+yz)(xy+x+yz)}{y^2z}, y, \frac{x}{z}\right)$ 4262: $\left(x, \frac{(yz+1)^2(xyz+(yz+1)^2)}{xy^3z^2}, \frac{(yz+1)^2(xyz+(yz+1)^2)}{xy^4z^3}\right)$
4098	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{2z}{y^3}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{4z}{xy}+\frac{12}{xy}+\frac{z^2}{xy^2}+\frac{12z}{xy^2}+\frac{6}{xy^2}+\frac{4z^2}{xy^3}+\frac{12z}{xy^3}+\frac{6z^2}{xy^4}+\frac{4z}{xy^4}+\frac{4z^2}{xy^5}+\frac{z^2}{xy^6}$	3624: $\left(\frac{(xyz+x+1)^2}{x^2yz^2}, x, \frac{x}{yz}\right)$
4111	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{6}{x}+\frac{8}{xz}+\frac{1}{xz^2}+\frac{4z}{xy}+\frac{12}{xy}+\frac{4}{xyz}+\frac{z^2}{xy^2}+\frac{8z}{xy^2}+\frac{6}{xy^2}+\frac{2z^2}{xy^3}+\frac{4z}{xy^3}+\frac{z^2}{xy^4}$	3704: $\left(\frac{z(x+1)(x+y)^2}{x^3}, x, y\right)$ 4224: $\left(\frac{x^2y^2z}{xy^2z+(y+z)^2}, \frac{xy^2z+(y+z)^2}{xyz}, \frac{xy^2z+(y+z)^2}{xy^2}\right)$
4120	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{6y}{x}+\frac{5y}{xz}+\frac{6z}{x}+\frac{9}{x}+\frac{2z^2}{xy}+\frac{7z}{xy}+\frac{2z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3935: $\left(\frac{(x+z)(xyz+x+z)}{x^2z}, \frac{(x+z)(xyz+x+z)}{x^2yz^2}, \frac{(x+z)(xyz+x+z)}{x^3yz}\right)$
4126	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{8}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{8z}{xy}+\frac{6}{xy}+\frac{3z^2}{xy^2}+\frac{7z}{xy^2}+\frac{1}{xy^2}+\frac{3z^2}{xy^3}+\frac{2z}{xy^3}+\frac{z^2}{xy^4}$	3219: $\left(\frac{(xy+1)(xy+yz+1)}{xy^2}, yz, \frac{z}{x}\right)$ 3900: $\left(x, \frac{y(xz+y)}{xz}, \frac{y^2(xz+y)}{x^2z^2}\right)$
4127	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{6y}{xz}+\frac{4}{x}+\frac{9}{xz}+\frac{4}{xyz}+\frac{3y^2}{x^2z}+\frac{2y}{x^2}+\frac{9y}{x^2z}+\frac{6}{x^2z}+\frac{3y^2}{x^3z}+\frac{4y}{x^3z}+\frac{y^2}{x^4z}$	3855: $\left(x, y, \frac{(x+y)(xy+x+y)^2}{x^3yz}\right)$ 4192: $\left(\frac{x^2}{x+yz}, \frac{xyz}{x+yz}, y\right)$
4136	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{2y}{xz^2}+\frac{3z}{x}+\frac{8}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{6}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3676: $\left(x+y, z, \frac{x}{y}\right)$ 4221: $\left(x, \frac{xyz}{xz+y}, \frac{y^2}{xz+y}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
4138	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{x}{yz^3}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{6}{y}+\frac{9}{yz}+\frac{4}{yz^2}+\frac{2z}{x}+\frac{3}{x}+\frac{3z}{xy}+\frac{9}{xy}+\frac{6}{xyz}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{4}{x^2y}+\frac{z}{x^3y}$	3640: $\left(\frac{(y+z)^2}{yz^2}, x, \frac{(y+z)^2}{y^2z}\right)$ 3871: $\left(z, \frac{(x+z)(xz+x+z)^2}{x^2yz^2}, x\right)$
4139	$x+\frac{xz}{y}+\frac{x}{y}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{z}{x}+\frac{4}{x}+\frac{5}{xz}+\frac{2}{xz^2}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{z}{x^2y}+\frac{4}{x^2y}+\frac{6}{x^2yz}+\frac{4}{x^2yz^2}+\frac{1}{x^2yz^3}$	3852: $\left(x, \frac{(x+yz)(xyz+x+yz)}{xyz^2}, \frac{yz}{x}\right)$
4140	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y}{x}+\frac{3y}{xz}+\frac{3y}{xz^2}+\frac{y}{xz^3}+\frac{2z}{x}+\frac{7}{x}+\frac{8}{xz}+\frac{3}{xz^2}+\frac{z^2}{xy}+\frac{5z}{xy}+\frac{7}{xy}+\frac{3}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3712: $\left(\frac{(z+1)^2(y+z)^2}{xyz^2}, y, z\right)$
4166	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{2y}{xz^2}+\frac{6}{x}+\frac{8}{xz}+\frac{6z}{xy}+\frac{12}{xy}+\frac{2z^2}{xy^2}+\frac{8z}{xy^2}+\frac{2z^2}{xy^3}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{10}{x^2y}+\frac{10z}{x^2y^2}+\frac{5z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	3976: $\left(x, \frac{xy+y+z}{x}, \frac{z(xy+y+z)}{xy}\right)$
4171	$x+\frac{x}{z}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{12}{xy}+\frac{10}{xyz}+\frac{3}{xyz^2}+\frac{z^2}{xy^2}+\frac{5z}{xy^2}+\frac{10}{xy^2}+\frac{10}{xy^2z}+\frac{5}{xy^2z^2}+\frac{1}{xy^2z^3}$	3970: $\left(\frac{x(yz+z+1)}{yz}, y, z\right)$
4173	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{8}{yz}+\frac{5}{y^2z}+\frac{2y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{12}{xz}+\frac{10}{xyz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{8y}{x^2z}+\frac{10}{x^2z}+\frac{2y^2}{x^3z}+\frac{5y}{x^3z}+\frac{y^2}{x^4z}$	3825: $\left(x, y, \frac{z(x+y)(xy+x+y)^2}{x^3y^2}\right)$
4185	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{9}{x}+\frac{9}{xz}+\frac{3}{xz^2}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{z}{xy^2}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^2z^2}$	3724: $\left(\frac{(x+1)(x+yz)^2}{xyz^2}, x, \frac{yz}{x}\right)$
4192	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+y+z+\frac{3}{y}+\frac{4}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{3yz}{x}+\frac{6z}{x}+\frac{7}{x}+\frac{12}{xy}+\frac{6}{xy^2z}+\frac{3yz^2}{x^2}+\frac{6yz}{x^2}+\frac{18z}{x^2}+\frac{15}{x^2y}+\frac{2y^2z^2}{x^3}+\frac{12yz^2}{x^3}+\frac{20z}{x^3}+\frac{3y^2z^3}{x^4}+\frac{15yz^2}{x^4}+\frac{6y^2z^3}{x^5}+\frac{y^3z^4}{x^6}$	4127: $\left(x+y, z, \frac{y(x+y)}{xz}\right)$
4198	$x+yz^3+3yz^2+3yz+y+2z+\frac{2}{z}+\frac{z^2}{x}+\frac{7z}{x}+\frac{12}{x}+\frac{7}{xz}+\frac{1}{xz^2}+\frac{4}{xyz}+\frac{4}{xyz^2}+\frac{4}{x^2y}+\frac{15}{x^2yz}+\frac{15}{x^2yz^2}+\frac{4}{x^2yz^3}+\frac{2}{x^2y^2z^3}+\frac{6}{x^3y^2z^2}+\frac{13}{x^3y^2z^3}+\frac{6}{x^3y^2z^4}+\frac{4}{x^4y^3z^4}+\frac{4}{x^4y^3z^5}+\frac{1}{x^5y^4z^6}$	3633: $\left(\frac{(xz+y^2)(xy+xz+y^2)^2}{x^2y^4z}, \frac{y^7}{(xz+y^2)(xy+xz+y^2)^2}, \frac{x}{y}\right)$
4201	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{8}{x}+\frac{4}{xz}+\frac{12}{xy}+\frac{2}{xyz}+\frac{6}{xy^2}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{13}{x^2z}+\frac{12}{x^2yz}+\frac{4}{x^2y^2z}+\frac{y^2}{x^3z^2}+\frac{4y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{1}{x^3y^2z^2}$	3973: $\left(\frac{(x+yz)(xz+x+yz)(yz+x(z+1)^2)}{x^2y^2z^3}, z, \frac{xy^3z^4}{(x+yz)(xz+x+yz)(yz+x(z+1)^2)}\right)$
4207	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+z+\frac{4z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{8}{x}+\frac{4}{xz}+\frac{8}{xy}+\frac{1}{xy^2}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{2y}{x^2z^2}+\frac{13}{x^2z}+\frac{4}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{10y}{x^3z^2}+\frac{6}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{4y}{x^4z^3}+\frac{y^2}{x^5z^4}$	3855: $\left(\frac{(x+y)(xz+y)}{xz}, z, \frac{x^2z^2}{y(x+y)(xz+y)}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
4209	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{3xz^2}{y}+\frac{3xz}{y}+\frac{x}{y}+y+4z+\frac{6z^2}{y}+\frac{12z}{y}+\frac{6}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{18}{xy}+\frac{3}{xyz}+\frac{4}{x^2z}+\frac{20}{x^2y}+\frac{12}{x^2yz}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{3}{x^3yz^2}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	3963: $\left(x, \frac{x^2yz+(xz+y)^2}{x^2z}, \frac{z}{y}\right)$
4221	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{5z}{y}+\frac{4}{y}+\frac{8z}{y^2}+\frac{4z}{y^3}+\frac{2y}{x}+\frac{2y}{xz}+\frac{8}{x}+\frac{2}{xz}+\frac{12}{xy}+\frac{6}{xy^2}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{8}{x^2z}+\frac{4}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	3461: $\left(\frac{(x+yz)^2(x^2+x+yz)}{x^2y^2z}, x, \frac{x^2y^3z^2}{(x+yz)^2(x^2+x+yz)}\right)$ 3624: $\left(\frac{(x+1)(x+z+1)(xz+z+1)}{x^2yz^2}, x, \frac{x^3yz^3}{(x+1)(x+z+1)(xz+z+1)}\right)$ 3704: $\left(\frac{(x+1)(x+yz)^2}{xy^2z}, x, \frac{xy^3z^2}{(x+1)(x+yz)^2}\right)$ 3712: $\left(\frac{(y+z)(x+1)(xz+y+z)}{xyz^2}, x, \frac{x^2y^2z}{(y+z)(x+1)(xz+y+z)}\right)$ 3837: $\left(\frac{(y+1)(x+yz)^2(x+y^2z+yz)}{x^2y^3z^2}, y, \frac{x^3y^3z}{(y+1)(x+yz)^2(x+y^2z+yz)}\right)$ 3871: $\left(\frac{(x+z)(x+yz+z)(xy+x+z)}{x^2yz^2}, y, \frac{x^3y^2z}{(x+z)(x+yz+z)(xy+x+z)}\right)$ 3929: $\left(x, y(z+1)^2, \frac{yz(z+1)^2}{x}\right)$ 3963: $\left(\frac{x(y+1)}{y}, y, \frac{yz}{y+1}\right)$ 4062: $\left(x+z, y, \frac{yz}{x(x+z)}\right)$ 4136: $\left(x, y+z, \frac{y(y+z)}{xz}\right)$
4223	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{3x}{y^2z}+\frac{x}{y^2z^2}+\frac{3x}{y^3z^2}+\frac{x}{y^4z^3}+y+z+\frac{7}{y}+\frac{4}{yz}+\frac{11}{y^2z}+\frac{5}{y^3z^2}+\frac{2yz}{x}+\frac{5z}{x}+\frac{5}{x}+\frac{15}{xy}+\frac{10}{xy^2z}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{9z}{x^2}+\frac{10}{x^2y}+\frac{2yz^2}{x^3}+\frac{5z}{x^3}+\frac{yz^2}{x^4}$	3837: $\left(x, \frac{x^2yz+(x+yz)^2}{x^2z}, \frac{x^2yz^2}{x^2yz+(x+yz)^2}\right)$
4224	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{2y}{xz^2}+\frac{9}{x}+\frac{8}{xz}+\frac{7z}{xy}+\frac{12}{xy}+\frac{2z^2}{xy^2}+\frac{8z}{xy^2}+\frac{2z^2}{xy^3}+\frac{y^2}{x^2z^3}+\frac{6y}{x^2z^2}+\frac{15}{x^2z}+\frac{20}{x^2y}+\frac{15z}{x^2y^2}+\frac{6z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	4111: $\left(\frac{xy^2z+(y+z)^2}{y^2z}, \frac{xy^3z}{xy^2z+(y+z)^2}, \frac{xy^2z^2}{xy^2z+(y+z)^2}\right)$
4226	$x+y+\frac{y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{7}{x}+\frac{8}{xz}+\frac{3}{xz^2}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{12}{xy}+\frac{10}{xyz}+\frac{3}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3712: $\left(\frac{y(z+1)^2(x+1)}{xz^2}, x, z\right)$
4240	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2yz^2}{x}+\frac{2yz}{x}+\frac{10z}{x}+\frac{6}{x}+\frac{20}{xy}+\frac{6}{xyz}+\frac{20}{xy^2z}+\frac{2}{xy^2z^2}+\frac{10}{xy^3z^2}+\frac{2}{xy^4z^3}+\frac{yz^2}{x^2}+\frac{6z}{x^2}+\frac{15}{x^2y}+\frac{20}{x^2y^2z}+\frac{15}{x^2y^3z^2}+\frac{6}{x^2y^4z^3}+\frac{1}{x^2y^5z^4}$	3976: $\left(x, \frac{(y+z)(xy+y+z)}{xy}, \frac{xy^2}{z(y+z)(xy+y+z)}\right)$
4253	$x+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{5}{yz}+\frac{2}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{9}{x}+\frac{9}{xz}+\frac{3}{xz^2}+\frac{3z}{xy}+\frac{12}{xy}+\frac{18}{xyz}+\frac{12}{xyz^2}+\frac{3}{xyz^3}+\frac{z}{xy^2}+\frac{5}{xy^2}+\frac{10}{xy^2z}+\frac{10}{xy^2z^2}+\frac{5}{xy^2z^3}+\frac{1}{xy^2z^4}$	3852: $\left(\frac{(x+yz)^2(xyz+x+yz)}{xy^2z^3}, x, \frac{yz}{x}\right)$

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Table 147 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 147a
4262	$x+2yz+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{2yz^2}{x}+\frac{5yz}{x}+\frac{10z}{x}+\frac{9}{x}+\frac{20}{xy}+\frac{7}{xyz}+\frac{20}{xy^2z}+\frac{2}{xy^2z^2}+\frac{10}{xy^3z^2}+\frac{2}{xy^4z^3}+\frac{y^2z^3}{x^2}+\frac{7yz^2}{x^2}+\frac{21z}{x^2}+\frac{35}{x^2y}+\frac{35}{x^2y^2z}+\frac{21}{x^2y^3z^2}+\frac{7}{x^2y^4z^3}+\frac{1}{x^2y^5z^4}$	4079: $\left(x, \frac{(y+z)^2(xyz+(y+z)^2)}{xy^3z^2}, \frac{xy^4z}{(y+z)^2(xyz+(y+z)^2)}\right)$
4271	$x+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{2}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{7}{x}+\frac{8}{xz}+\frac{3}{xz^2}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{18}{xy}+\frac{22}{xyz}+\frac{13}{xyz^2}+\frac{3}{xyz^3}+\frac{z^2}{xy^2}+\frac{6z}{xy^2}+\frac{15}{xy^2}+\frac{20}{xy^2z}+\frac{15}{xy^2z^2}+\frac{6}{xy^2z^3}+\frac{1}{xy^2z^4}$	3970: $\left(\frac{(yz+(z+1)^2)^2}{xyz^2}, y, z\right)$

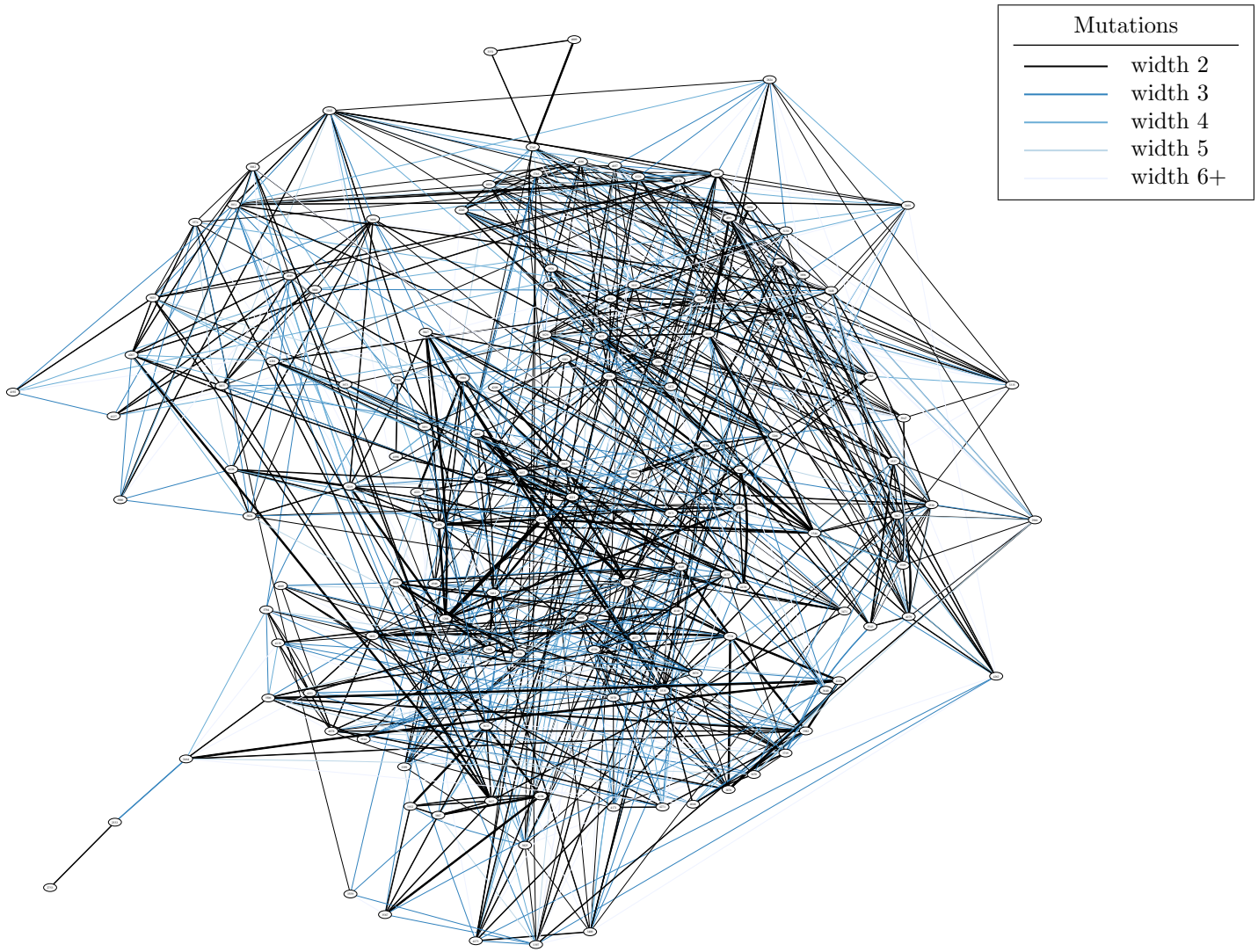

Figure 147b. All mutations between Minkowski polynomials in bucket 147

Bucket 148

Any two Minkowski polynomials in bucket 148 are connected by a sequence of mutations, but it is not possible to insist that all of the Laurent polynomials involved are Minkowski polynomials. The smallest number of additional Laurent polynomials that one needs to add in order to connect up the bucket is two, and one can insist that both of these Laurent polynomials g, h have reflexive Newton polytopes. There are many possible choices for g and h: one such choice, together with a collection of mutations that together connect any two Minkowski polynomials in bucket 148, is shown in Figure 148 and Table 148. The Laurent polynomials g and h are indicated in red.

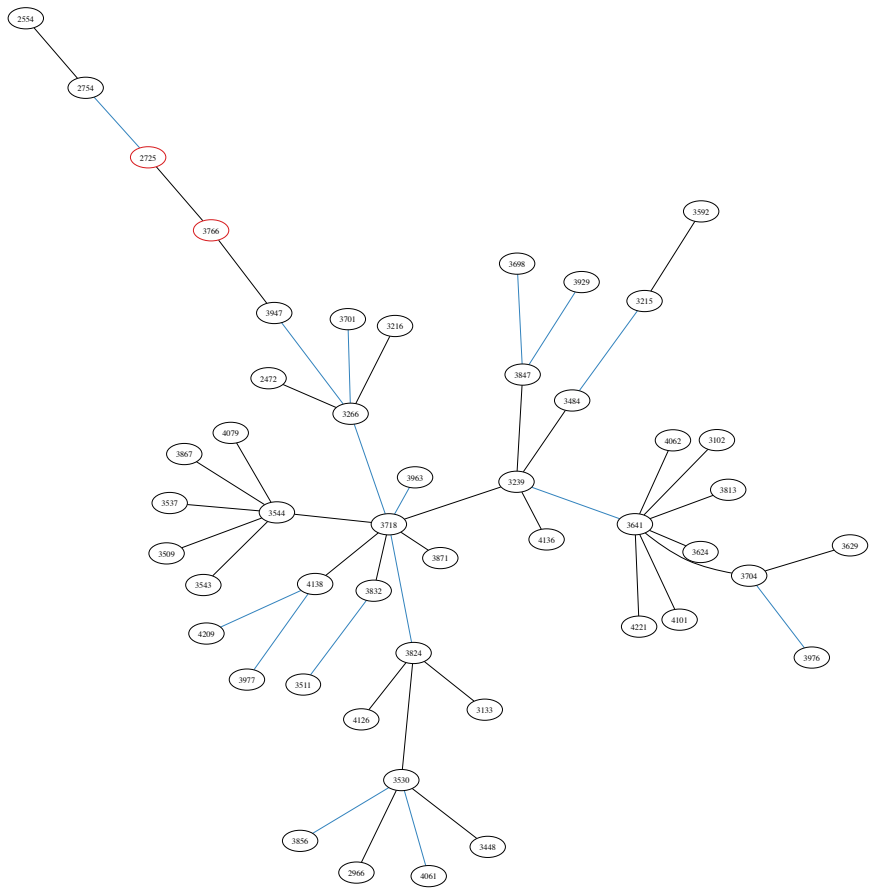

Figure 148. Selected width-2 and width-3 mutations that connect up Minkowski polynomials in bucket 148

Table 148. Laurent polynomials and selected mutations for bucket 148.

Node	Laurent polynomial	Mutations from Figure 148
2472	$xy^2 + \frac{xy^2}{z} + 2xy + \frac{2xy}{z} + x + \frac{x}{z} + 2y + z + \frac{2}{y} + \frac{1}{x} + \frac{3z}{xy} + \frac{3}{xy} + \frac{1}{xy^2} + \frac{3z}{x^2y^2} + \frac{z}{x^3y^3}$	3266: $\left(xz^2, \frac{1}{z}, \frac{xyz}{xz+1}\right)$
2554	$xy^3z^3 + xy^2z^3 + 3xy^2z^2 + xyz^2 + 3xyz + x + y^2z + yz + y + z + \frac{3}{yz} + \frac{1}{xz} + \frac{2}{xyz} + \frac{3}{xy^2z^2} + \frac{1}{x^2y^3z^3}$	2754: $\left(x, \frac{xy^2z^2+xyz+1}{xz}, \frac{xyz^2}{xy^2z^2+xyz+1}\right)$
2725	$xz^2 + 2xz + x + \frac{2x}{y} + \frac{2x}{yz} + \frac{x}{y^2z^2} + y + 3z + \frac{3}{z} + \frac{4}{yz} + \frac{3}{yz^2} + \frac{1}{y^2z^3} + \frac{3}{x} + \frac{3}{xz} + \frac{2}{xyz^2} + \frac{1}{x^2z}$	2754: $\left(yz(y^2z+1), xyz^2(y^2z+1), \frac{1}{xy^2z^2}\right)$ 3766: $\left(\frac{x^2y}{(x+z)^2}, \frac{x^3}{(x+z)^2}, \frac{(x+z)^2}{x^2z}\right)$
2754	$xy^3z^3 + 3xy^2z^2 + xyz^2 + 3xyz + x + y^3z^2 + 2y^2z + yz + y + \frac{3}{yz} + \frac{2y}{x} + \frac{2}{xz} + \frac{2}{xyz} + \frac{3}{xy^2z^2} + \frac{1}{x^2yz^2} + \frac{1}{x^2y^3z^3}$	2554: $\left(x, \frac{xy^2z}{xy^2z^2+xyz+1}, \frac{xy^2z^2+xyz+1}{xy}\right)$ 2725: $\left(\frac{(x+yz)^2}{x^2y^2z^3}, \frac{x+yz}{y^2z^2}, \frac{xy^3z^3}{(x+yz)^2}\right)$
2966	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{3yz}{x}+\frac{3}{x}+\frac{1}{xyz}$	3530: $\left(\frac{yz(yz+1)}{x}, y, z\right)$
3102	$\frac{x^2}{y^2z} + \frac{x^2}{y^3z^2} + x + \frac{2x}{y} + \frac{2x}{yz} + \frac{4x}{y^2z} + y + z + \frac{6}{y} + \frac{2}{yz} + \frac{2yz}{x} + \frac{2y}{x} + \frac{4z}{x} + \frac{4}{x} + \frac{yz^2}{x^2} + \frac{2yz}{x^2} + \frac{y}{x^2}$	3641: $\left(x, \frac{(x+yz)^2}{y^2z}, \frac{y^3z^2}{(x+yz)^2}\right)$
3133	$xz^2 + 2xz + x + yz + y + 3z + \frac{2}{z} + \frac{2z}{y} + \frac{2}{y} + \frac{y}{x} + \frac{y}{xz} + \frac{3}{x} + \frac{3}{xz} + \frac{1}{xz^2} + \frac{3}{xy} + \frac{2}{xyz} + \frac{1}{xy^2}$	3824: $\left(\frac{x^2}{x+y}, z, \frac{x+y}{xy}\right)$
3215	$\frac{x^2z}{y^2} + x + \frac{2xz}{y} + \frac{3x}{y} + y + \frac{y}{z} + z + \frac{3}{z} + \frac{1}{y} + \frac{2y}{x} + \frac{3y}{xz} + \frac{y}{xz^2} + \frac{2}{x} + \frac{2}{xz} + \frac{y}{x^2} + \frac{2y}{x^2z} + \frac{y}{x^2z^2}$	3484: $\left(\frac{x}{y}, \frac{x^2}{x+y}, z\right)$ 3592: $\left(\frac{(yz+y+1)^2}{xy^2z}, \frac{(yz+y+1)^2}{xy^2z^2}, y\right)$
3216	$x + \frac{x}{z} + \frac{2x}{y} + \frac{2x}{yz} + \frac{x}{y^2} + \frac{x}{y^2z} + y + z + \frac{2}{z} + \frac{3}{y} + \frac{2}{yz} + \frac{2yz}{x} + \frac{3y}{x} + \frac{3}{x} + \frac{1}{xz} + \frac{y^2z}{x^2} + \frac{y}{x^2}$	3266: $\left(\frac{xz+1}{z}, \frac{xz+1}{xz^2}, y\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
3239	$\frac{x^2}{yz}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{yz}{x^2}$	3484: $\left(\frac{xz}{y+z}, \frac{xy}{y+z}, \frac{x}{y}\right)$ 3641: $\left(\frac{xyz}{x+yz}, \frac{y^2z}{x+yz}, \frac{x^2}{x+yz}\right)$ 3718: $\left(\frac{x+y+z}{yz}, \frac{x+y+z}{xz}, \frac{x}{z}\right)$ 3847: $\left(\frac{y^2z}{x+yz+y}, \frac{xyz}{x+yz+y}, \frac{yz}{x}\right)$ 4136: $\left(\frac{xy^2z}{(y+z)(yz+y+z)}, \frac{xyz^2}{(y+z)(yz+y+z)}, y\right)$
3266	$xz^2+2xz+x+\frac{xz^2}{y}+\frac{2xz}{y}+\frac{x}{y}+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{2}{y}+\frac{1}{yz}+\frac{2y}{xz}+\frac{1}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{y}{x^2z^2}$	2472: $\left(xy^2, \frac{z(xy+1)}{xy}, \frac{1}{y}\right)$ 3216: $\left(\frac{x^2}{x+y}, z, \frac{x+y}{xy}\right)$ 3701: $\left(\frac{x(x+z)}{yz^2}, \frac{x^2}{x+z}, \frac{yz}{x+z}\right)$ 3718: $\left(\frac{x^2}{x+y}, z, \frac{y}{x}\right)$ 3947: $\left(\frac{(xz+y)^2}{x^2yz^2}, \frac{xy^2}{(xz+y)^2}, \frac{xy^2z}{(xz+y)^2}\right)$
3448	$xz^2+2xz+x+y+3z+\frac{2}{z}+\frac{z^2}{y}+\frac{3z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{z}{xy}+\frac{3}{xy}+\frac{3}{xyz}+\frac{1}{xyz^2}$	3530: $\left(x, \frac{yz+1}{z}, \frac{1}{yz}\right)$
3484	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3215: $\left(\frac{y(x+1)}{x}, \frac{y(x+1)}{x^2}, z\right)$ 3239: $\left(\frac{z(x+y)}{x}, \frac{z(x+y)}{x^2}, \frac{z(x+y)}{xy}\right)$
3509	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{3z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{4y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	3544: $\left(\frac{(x+yz)^2}{x^2z}, y, \frac{x}{z}\right)$
3511	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{3x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{3}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	3832: $\left(\frac{yz}{x}, z, \frac{y^2}{x+y}\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
3530	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{1}{xy}$	2966: $\left(\frac{yz(yz+1)}{x}, y, z\right)$ 3448: $\left(x, \frac{y}{z+1}, \frac{z+1}{yz}\right)$ 3824: $\left(\frac{x^2z}{xz+yz+y}, z, \frac{xy}{xz+yz+y}\right)$ 3856: $\left(\frac{x^2}{x+y}, \frac{xz}{x+y}, \frac{x+y}{yz}\right)$ 4061: $\left(\frac{xy^2z^2}{(yz+1)^2}, \frac{(yz+1)^2}{y^2z}, \frac{y^3z^2}{(yz+1)^2}\right)$
3537	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{z^2}{xy^2}$	3544: $\left(\frac{x(x+yz)}{yz}, \frac{x+yz}{y}, \frac{x(x+yz)}{y^2z}\right)$
3543	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{3}{x}+\frac{yz}{x^2}+\frac{y}{x^2}$	3544: $\left(\frac{x+yz}{y}, \frac{x(x+yz)}{y^2z}, x\right)$
3544	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{1}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{z}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{yz}{x^2}$	3509: $\left(y, \frac{(y+z)^2}{xz}, \frac{xy^2}{(y+z)^2}\right)$ 3537: $\left(\frac{x}{z}, \frac{xy}{y+z}, \frac{y+z}{z^2}\right)$ 3543: $\left(z, \frac{z(x+y)}{xy}, \frac{x^2}{x+y}\right)$ 3718: $\left(\frac{x}{z}, \frac{y}{z}, \frac{x^2}{x+y}\right)$ 3867: $\left(z, \frac{(z+1)(x+y)}{xy}, \frac{x^2z}{(z+1)(x+y)}\right)$ 4079: $\left(y, \frac{(y+1)(y+z)^2}{xyz}, \frac{xy^3}{(y+1)(y+z)^2}\right)$
3592	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{z}{x}+\frac{3}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^3z^2}$	3215: $\left(\frac{(xz+yz+y)^2}{x^2yz^2}, z, \frac{x}{y}\right)$
3624	$x+\frac{x}{yz}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{2}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^2yz^2}$	3641: $\left(x, \frac{(x+1)^2}{y^2z}, \frac{yz}{x}\right)$
3629	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{4x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{6}{y}+\frac{4}{yz}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{4z}{xy}+\frac{6}{xy}+\frac{2z}{x^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{z^2}{x^3y}$	3704: $\left(x, \frac{(x+y)^2}{y^2z}, y\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
3641	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+y+z+\frac{1}{z}+\frac{4}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	3102: $\left(\frac{(x+yz)^2}{y^2z}, x, \frac{(x+yz)^2}{x^2y}\right)$ 3239: $\left(x+z, \frac{y(x+z)}{x}, \frac{x^2}{yz}\right)$ 3624: $\left(\frac{(x+1)^2}{xyz}, x, \frac{(x+1)^2}{x^2yz^2}\right)$ 3704: $\left(\frac{y(x+1)}{x}, x, \frac{x+1}{xz}\right)$ 3813: $\left(\frac{yz}{x}, y, \frac{xy+x+yz}{x^2y}\right)$ 4062: $\left(\frac{(y+1)^2(x+z)}{xyz}, y, \frac{(y+1)^2(x+z)}{y^2z^2}\right)$ 4101: $\left(y, z, \frac{(y+z+1)^2}{xz^2}\right)$ 4221: $\left(\frac{x^2y^2z}{xy^2z+(xz+y)^2}, y, \frac{xy^2}{xy^2z+(xz+y)^2}\right)$
3698	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3847: $\left(y, \frac{xyz}{x+yz}, \frac{yz}{x}\right)$
3701	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{3}{xy}+\frac{yz}{x^2}+\frac{2z}{x^2}+\frac{z}{x^2y}$	3266: $\left(\frac{y(xz+1)}{xz}, z(xz+1), \frac{y(xz+1)}{x^2z^2}\right)$
3704	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{z}{x}+\frac{4}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	3629: $\left(x, z, \frac{(x+z)^2}{yz^2}\right)$ 3641: $\left(y, \frac{xy}{y+1}, \frac{y+1}{yz}\right)$ 3976: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, \frac{y+z}{z^2}\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
3718	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3239: $\left(\frac{x+y+1}{z},\frac{x(x+y+1)}{yz},\frac{x+y+1}{yz}\right)$ 3266: $(x(z+1),xz(z+1),y)$ 3544: $\left(\frac{z(x+y)}{x},\frac{yz(x+y)}{x^2},\frac{z(x+y)}{x^2}\right)$ 3824: $\left(\frac{xz}{z+1},y,\frac{x}{z+1}\right)$ 3832: $\left(x,y,\frac{xy+x+y}{yz}\right)$ 3871: $\left(z,x,\frac{x+z}{y}\right)$ 3963: $\left(\frac{xy}{xz+y},\frac{x^2z}{xz+y},\frac{x}{y}\right)$ 4138: $\left(z,x,\frac{(x+z)(xz+x+z)}{xyz}\right)$
3766	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{2z^2}{xy}+\frac{6z}{xy}+\frac{2z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	2725: $\left(\frac{(yz+1)^2}{yz^2},\frac{x(yz+1)^2}{y^2z^2},\frac{(yz+1)^2}{y^2z^3}\right)$ 3947: $\left(x,\frac{xy^3}{(xz+y)(xy+xz+y)},\frac{x^2y^2z}{(xz+y)(xy+xz+y)}\right)$
3813	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{4x}{yz}+\frac{3x}{yz^2}+\frac{2x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{z}{x^2}$	3641: $\left(\frac{x+y+1}{yz},y,\frac{x(x+y+1)}{y^2z}\right)$
3824	$x+\frac{2x}{y}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{yz}{x^2}+\frac{3y}{x^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}$	3133: $(x(z+1),xz(z+1),y)$ 3530: $\left(x+yz+z,\frac{yz(x+yz+z)}{x},y\right)$ 3718: $\left(x+z,y,\frac{x}{z}\right)$ 4126: $\left(\frac{xy}{y+z},\frac{xz}{y+z},y\right)$
3832	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{4}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y}{x^2}+\frac{1}{x^2z}$	3511: $\left(\frac{yz(x+y)}{x^2},\frac{z(x+y)}{x},y\right)$ 3718: $\left(y,x,\frac{xy+x+y}{xz}\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
3847	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{5}{y}+\frac{5}{yz}+\frac{1}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	3239: $\left(\frac{x+yz+y}{z},\frac{x(x+yz+y)}{yz},\frac{yz}{x}\right)$ 3698: $\left(\frac{y(z+1)}{z},x,\frac{y(z+1)}{x}\right)$ 3929: $\left(\frac{x}{z+1},\frac{xz}{z+1},y(z+1)\right)$
3856	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{4}{y}+\frac{4}{yz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{z}{x}+\frac{5}{x}+\frac{6}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{4y}{x^2z}+\frac{y^2}{x^3z}$	3530: $\left(\frac{x(yz+1)}{yz},\frac{x(yz+1)}{y^2z^2},\frac{yz+1}{z}\right)$
3867	$x+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3544: $\left(\frac{(x+1)(x+yz)}{xy},\frac{(x+1)(x+yz)}{y^2z},x\right)$
3871	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+y+\frac{y}{z}+z+\frac{4}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{z}{x^2}+\frac{z}{x^2y}$	3718: $\left(y,\frac{x+y}{z},x\right)$
3929	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{yz}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{z^2}{x}+\frac{6z}{x}+\frac{10}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{5}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	3847: $\left(x+y,\frac{xz}{x+y},\frac{y}{x}\right)$
3947	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{3xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{5xz^2}{y^3}+y+z+\frac{6z}{y}+\frac{6}{y}+\frac{10z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{10}{xy}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{y}{x^3z^2}$	3266: $\left(\frac{y(xz+1)^2}{x^2z^2},\frac{(xz+1)^2}{x},\frac{z}{y}\right)$ 3766: $\left(x,\frac{(y+z)(xy+y+z)}{xy},\frac{z(y+z)(xy+y+z)}{x^2y^2}\right)$
3963	$x+\frac{2xz}{y}+\frac{x}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{xz^2}{y^3}+y+z+\frac{5z}{y}+\frac{4}{y}+\frac{4z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{8}{x}+\frac{2}{xz}+\frac{6}{xy}+\frac{y^2}{x^2z}+\frac{5y}{x^2z}+\frac{4}{x^2z}+\frac{y^2}{x^3z^2}+\frac{y}{x^3z^2}$	3718: $\left(x+y,\frac{x+y}{z},\frac{y}{xz}\right)$
3976	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	3704: $\left(x+y,\frac{x(x+y)}{y^2z},\frac{x+y}{yz}\right)$
3977	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz^2}{x}+\frac{2yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{6}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	4138: $\left(y,\frac{x^2}{x+z},\frac{z}{x}\right)$
4061	$x+2yz+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{y^2z^2}{x}+\frac{y^2z}{x}+\frac{yz^2}{x}+\frac{5yz}{x}+\frac{2y}{x}+\frac{5z}{x}+\frac{9}{x}+\frac{1}{xz}+\frac{10}{xy}+\frac{7}{xyz}+\frac{10}{xy^2z}+\frac{2}{xy^2z^2}+\frac{5}{xy^3z^2}+\frac{1}{xy^4z^3}$	3530: $\left(\frac{x(yz+1)^2}{y^2z^2},\frac{(yz+1)^2}{y^2z},\frac{y^3z^2}{(yz+1)^2}\right)$
4062	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2z^2}+y+\frac{y}{z}+z+\frac{5}{z}+\frac{4}{y}+\frac{7}{yz}+\frac{3}{y^2z}+\frac{y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{7}{xy}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	3641: $\left(\frac{(x+1)^2(x+yz)}{x^2y},x,\frac{(x+1)^2(x+yz)}{xy^2z}\right)$

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Table 148 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 148
4079	$x+y+\frac{2y}{z}+z+\frac{1}{z}+\frac{3z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{9}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	3544: $\left(\frac{(x+1)(x+yz)^2}{xy^2z}, x, \frac{x^2}{yz}\right)$
4101	$x+y+\frac{2y}{z}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{4y}{xz^2}+\frac{6}{x}+\frac{12}{xz}+\frac{6}{xz^2}+\frac{4z}{xy}+\frac{12}{xy}+\frac{12}{xyz}+\frac{4}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	3641: $\left(\frac{(x+y+1)^2}{y^2z}, x, y\right)$
4126	$x+y+\frac{2y}{z}+z+\frac{3z}{y}+\frac{2}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{3z}{x}+\frac{10}{x}+\frac{2}{xz}+\frac{z^2}{xy}+\frac{9z}{xy}+\frac{7}{xy}+\frac{3z^2}{xy^2}+\frac{8z}{xy^2}+\frac{1}{xy^2}+\frac{3z^2}{xy^3}+\frac{2z}{xy^3}+\frac{z^2}{xy^4}$	3824: $\left(x+y, z, \frac{yz}{x}\right)$
4136	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{6y}{xz}+\frac{2y}{xz^2}+\frac{3z}{x}+\frac{10}{x}+\frac{7}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{7}{xy}+\frac{2}{xyz}+\frac{z^2}{xy^2}+\frac{2z}{xy^2}+\frac{1}{xy^2}$	3239: $\left(\frac{(x+y)(x+yz+y)}{yz}, z, \frac{yz}{x}\right)$
4138	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{x}{yz^3}+y+z+\frac{4}{z}+\frac{z}{y}+\frac{6}{y}+\frac{9}{yz}+\frac{4}{yz^2}+\frac{2z}{x}+\frac{4}{x}+\frac{3z}{xy}+\frac{9}{xy}+\frac{6}{xyz}+\frac{z}{x^2}+\frac{3z}{x^2y}+\frac{4}{x^2y}+\frac{z}{x^3y}$	3718: $\left(y, \frac{(x+y)(xy+x+y)}{xyz}, x\right)$ 3977: $(y(z+1), x, yz(z+1))$ 4209: $\left(\frac{x^2z}{xz+1}, y, \frac{x}{xz+1}\right)$
4209	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{3xz^2}{y}+\frac{3xz}{y}+\frac{x}{y}+y+5z+\frac{6z^2}{y}+\frac{12z}{y}+\frac{6}{y}+\frac{8}{x}+\frac{2}{xz}+\frac{15z}{xy}+\frac{18}{xy}+\frac{3}{xyz}+\frac{5}{x^2z}+\frac{20}{x^2y}+\frac{12}{x^2yz}+\frac{1}{x^3z^2}+\frac{15}{x^3yz}+\frac{3}{x^3yz^2}+\frac{6}{x^4yz^2}+\frac{1}{x^5yz^3}$	4138: $\left(x+z, y, \frac{x}{z(x+z)}\right)$
4221	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{6z}{y}+\frac{4}{y}+\frac{9z}{y^2}+\frac{4z}{y^3}+\frac{2y}{x}+\frac{2y}{xz}+\frac{10}{x}+\frac{2}{xz}+\frac{14}{xy}+\frac{6}{xy^2}+\frac{y^2}{x^2z}+\frac{6y}{x^2z}+\frac{9}{x^2z}+\frac{4}{x^2yz}+\frac{y^2}{x^3z^2}+\frac{2y}{x^3z^2}+\frac{1}{x^3z^2}$	3641: $\left(\frac{xy^2z+(x+yz)^2}{y^2z}, y, \frac{xy^2}{xy^2z+(x+yz)^2}\right)$

Bucket 149

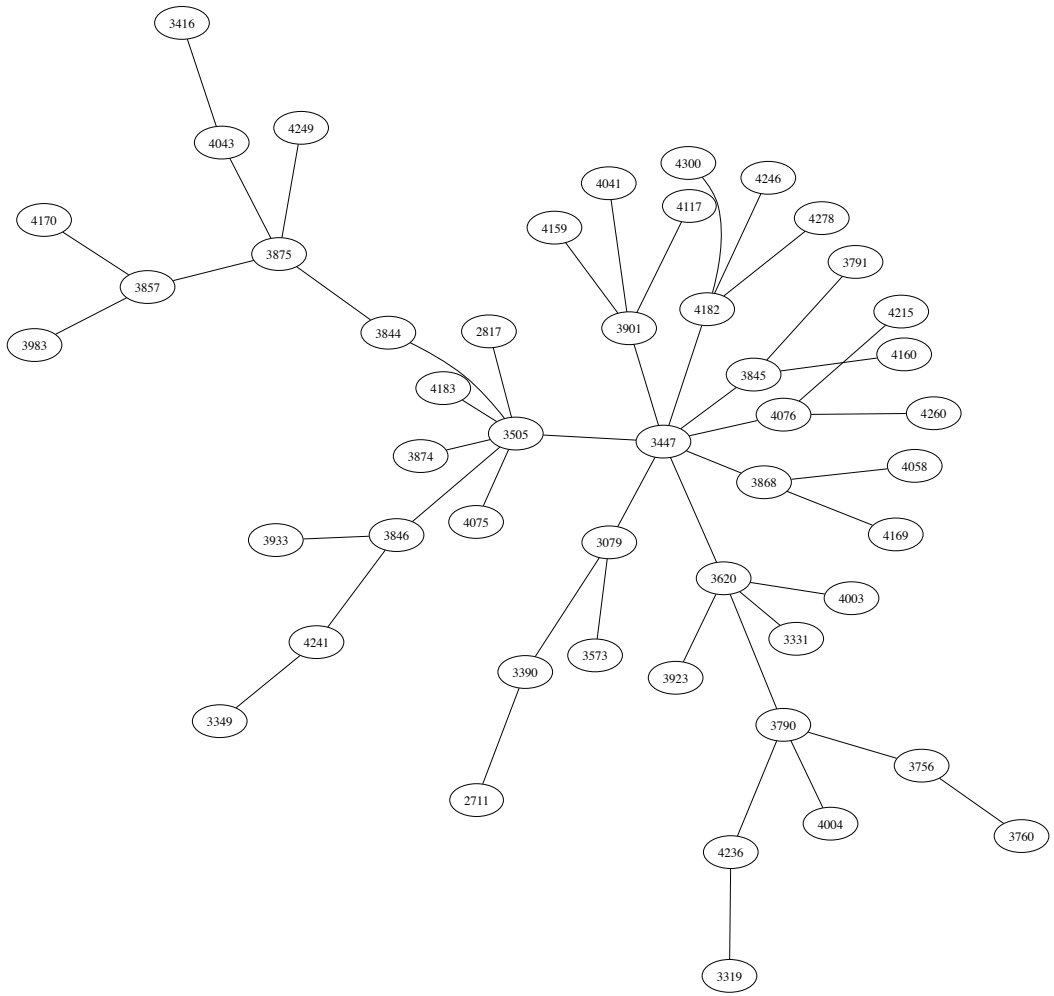

Figure 149a. Selected width-2 mutations between Minkowski polynomials in bucket 149

Table 149. Laurent polynomials and selected mutations for bucket 149.

Node	Laurent polynomial	Mutations from Figure 149a
2711	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{2}{yz^2}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}$	3390: $\left(x+y,\frac{y^2z}{x^2},\frac{x}{y}\right)$
2817	$\frac{x^2y^3}{z}+xy^2+\frac{4xy^2}{z}+2xy+x+2y+\frac{6y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{1}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}$	3505: $\left(\frac{1}{x},xy,x^2y^2z(y+1)\right)$
3079	$xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+2y+z+\frac{2}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}$	3390: $\left(\frac{y^2}{x+y},\frac{x}{y},\frac{y^3z}{x^2(x+y)}\right)$ 3447: $\left(\frac{x^2}{x+y+z},\frac{y}{x},\frac{x^2}{yz}\right)$ 3573: $\left(\frac{xz^2}{(y+z)^2},\frac{y}{z},\frac{z^3}{(y+z)^2}\right)$
3319	$xy^2+2xyz+2xy+xz^2+2xz+x+4y+4z+\frac{6}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xyz}+\frac{4}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{1}{x^3y^2z^2}$	4236: $\left(\frac{(x^2yz+(xy+1)^2)^2}{x^3y^2},\frac{x^4y^3}{(x^2yz+(xy+1)^2)^2},\frac{1}{x^2yz}\right)$
3331	$x+yz^4+4yz^3+6yz^2+4yz+y+2z+\frac{2}{z}+\frac{2}{yz^2}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{4}{xyz^2}+\frac{2}{xyz^3}+\frac{1}{xy^2z^4}$	3620: $\left(x+y,\frac{y^4z}{x^3(x+y)},\frac{x}{y}\right)$
3349	$xy^2+2xyz+2xy+xz^2+2xz+x+2y+2z+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2yz}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	4241: $\left(\frac{x^3y^2}{(xy+xz+1)^2},\frac{(xy+xz+1)^2}{x^2y},\frac{(xy+xz+1)^2}{x^4y^2z}\right)$
3390	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{2x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{x}{y^2}+y+z+\frac{2}{z}+\frac{3}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{y^2z}{x^2}+\frac{y}{x^2}$	2711: $\left(\frac{x}{z+1},\frac{xz}{z+1},y\right)$ 3079: $\left(xy(y+1),x(y+1),y^2z(y+1)\right)$
3416	$x^2yz^2+2xyz^2+2xyz+2xz+x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	4043: $\left(\frac{(yz+1)^2}{xy^2z^2},\frac{y}{(yz+1)^2},yz\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
3447	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{3y}{z}+z+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3079: $\left(\frac{x(y^2z+yz+1)}{z}, \frac{x(y^2z+yz+1)}{yz}, \frac{x(y^2z+yz+1)}{y^2z^2}\right)$
		3505: $\left(x(y+1), xy(y+1), x^2y^2z(y+1)\right)$
		3620: $\left(\frac{(x+y)(x^2+xyz+y^2z)}{xy^3z}, \frac{(x+y)(x^2+xyz+y^2z)}{x^2y^2z}, \frac{(x+y)(x^2+xyz+y^2z)}{y^4z^2}\right)$
		3845: $\left(yz, y, \frac{y(z+1)}{xz}\right)$
		3868: $\left(z, \frac{x}{y}, \frac{x^2z}{xz+x+yz}\right)$
		3901: $\left(\frac{(z+1)^2(yz^2+yz+1)}{xyz^3}, \frac{(z+1)^2(yz^2+yz+1)}{xyz^2}, \frac{(z+1)^2(yz^2+yz+1)}{xy^2z^4}\right)$
		4076: $\left(z, \frac{yz}{x}, \frac{z(x+y)^2}{x^2y}\right)$
		4182: $\left(y, z, \frac{xy^2z^2}{(yz+y+z)^2}\right)$
3505	$x^2y^3z+x^2y^2z+2xy^2z+xy^2+2xyz+2xy+x+yz+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	2817: $\left(\frac{1}{x}, xy, \frac{z}{y^2(xy+1)}\right)$
		3447: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{z(x+y)}{xy^2}\right)$
		3844: $\left(\frac{y^2z}{x^2}, \frac{x}{yz}, \frac{x^2yz}{(x+y)(x+yz)}\right)$
		3846: $\left(\frac{1}{y^2z}, y, \frac{z(y+1)}{xy}\right)$
		3874: $\left(\frac{yz}{x^2}, \frac{x}{z}, \frac{xz}{x+y}\right)$
		4075: $\left(\frac{x^2}{y^2z}, \frac{y}{x}, \frac{z(x+y)^2}{x^2y}\right)$
		4183: $\left(yz^2, \frac{1}{yz}, \frac{xyz}{(z+1)^2(yz+1)}\right)$
3573	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+\frac{2y}{z^2}+z+\frac{6}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{2z}{y^2}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{6}{x}+\frac{4z}{xy}+\frac{z^2}{xy^2}$	3079: $\left(x(y+1)^2, yz(y+1)^2, z(y+1)^2\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
3620	$\frac{x^3}{y^4z^2}+\frac{2x^2}{y^2z}+\frac{2x^2}{y^3z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{4x}{y^2z}+y+z+\frac{3}{y}+\frac{2}{yz}+\frac{3yz}{x}+\frac{2y}{x}+\frac{3}{x}+\frac{3y^2z}{x^2}+\frac{y}{x^2}+\frac{y^3z}{x^3}$	3331: $\left(\frac{xz}{z+1},\frac{x}{z+1},yz^3(z+1)\right)$ 3447: $\left(\frac{(x+y)(x+y+z)}{xy^2},\frac{(x+y)(x+y+z)}{x^2y},\frac{x^2}{yz}\right)$ 3790: $\left(\frac{y+1}{y^2z},\frac{y+1}{yz},\frac{x}{y+1}\right)$ 3923: $\left(\frac{(x+y)^2}{xyz},\frac{(x+y)^2}{y^2z},\frac{y^3}{(x+y)^2}\right)$ 4003: $\left(\frac{(yz+1)^3}{y^2z},\frac{(yz+1)^3}{y^3z^2},\frac{xy^3z^3}{(yz+1)^3}\right)$
3756	$xz^2+2xz+x+\frac{2xz^3}{y}+\frac{4xz^2}{y}+\frac{2xz}{y}+\frac{xz^4}{y^2}+\frac{2xz^3}{y^2}+\frac{xz^2}{y^2}+y+4z+\frac{2}{z}+\frac{3z^2}{y}+\frac{4z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{y}{x^2z^2}$	3760: $\left(\frac{x^2+xz+yz}{yz^2},\frac{x^3}{x^2+xz+yz},\frac{xyz}{x^2+xz+yz}\right)$ 3790: $\left(x+z,\frac{x+z}{xy^2z},\frac{1}{xy}\right)$
3760	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{2yz}{x}+\frac{4y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{z}{xy}+\frac{y^2z}{x^2}+\frac{4yz}{x^2}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{2y^2z}{x^3}+\frac{3yz}{x^3}+\frac{y^2z}{x^4}$	3756: $\left(\frac{xyz+xz^2+y}{xz},\frac{z(xyz+xz^2+y)}{y},\frac{xyz+xz^2+y}{x^2z^2}\right)$
3790	$xy^2+2xy+x+y^2z+2yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{4z}{x}+\frac{2}{x}+\frac{2z}{xy}+\frac{4}{xy}+\frac{2}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	3620: $\left(\frac{z(x+y)}{x},\frac{y}{x},\frac{x+y}{y^2}\right)$ 3756: $\left(\frac{xy}{xz^2+y},\frac{xz^2+y}{xyz},\frac{x^2z^2}{xz^2+y}\right)$ 4004: $\left(\frac{x+y(xz+1)^2}{xy},\frac{x^2yz}{x+y(xz+1)^2},\frac{x+y(xz+1)^2}{x^2}\right)$ 4236: $\left(\frac{x^5y^3z}{(x^2yz+1)(x^2yz+(xy+1)^2)},\frac{(x^2yz+1)(x^2yz+(xy+1)^2)}{x^4y^2z},\frac{x^3y^2}{(x^2yz+1)(x^2yz+(xy+1)^2)}\right)$
3791	$xz^2+2xz+x+y+2z+\frac{2}{z}+\frac{z^2}{y}+\frac{4z}{y}+\frac{6}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{1}{xyz^3}$	3845: $(x,y(z+1),z)$
3844	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{4x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{6}{y}+\frac{4}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	3505: $\left(z(y+1)(xy+1),xyz(y+1)(xy+1),\frac{1}{xy^2}\right)$ 3875: $\left(\frac{x(x+yz)^2}{y^2z^2},\frac{(x+yz)^2}{yz^2},z\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
3845	$xz^2+2xz+x+yz+y+2z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{1}{xy}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xyz^3}$	3447: $\left(\frac{y(x+y)}{xz}, y, \frac{x}{y}\right)$ 3791: $\left(x, \frac{y}{z+1}, z\right)$ 4160: $\left(y, \frac{(z+1)^3(yz+1)}{xyz^3}, z\right)$
3846	$xy^2+2xy+x+y^2z+2yz+2y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^3z}$	3505: $\left(\frac{y+1}{xy^3z}, y, \frac{1}{xy^2}\right)$ 3933: $\left(\frac{xz+y^2+yz}{y^2z}, \frac{xyz}{xz+y^2+yz}, \frac{xz+y^2+yz}{xy^2}\right)$ 4241: $\left(\frac{x^4y^2z}{(xy+xz+1)(x^2yz+xz+1)}, \frac{(xy+xz+1)(x^2yz+xz+1)}{x^3yz}, \frac{x^2y}{(xy+xz+1)(x^2yz+xz+1)}\right)$
3857	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	3875: $\left(\frac{yz(x+y)}{x^2}, x+y, \frac{yz^2(x+y)}{x^3}\right)$ 3983: $\left(z, \frac{xyz}{yz+y+z}, \frac{yz+y+z}{x}\right)$ 4170: $\left(y, \frac{xy^2z^2}{(yz+y+z)^2}, \frac{(yz+y+z)^2}{xyz}\right)$
3868	$x+\frac{x}{z}+\frac{x}{y}+\frac{2x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	3447: $\left(\frac{z(xy+x+y)}{xy}, \frac{z(xy+x+y)}{xy^2}, x\right)$ 4058: $\left(z, \frac{x^2yz}{xyz+(x+y)^2}, \frac{xyz+(x+y)^2}{xy^2}\right)$ 4169: $\left(y, \frac{(xz+y)(xy^2z+(xz+y)^2)}{x^3yz^2}, \frac{x^2y^3z}{(xz+y)(xy^2z+(xz+y)^2)}\right)$
3874	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{3x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3505: $\left(yz(xy+1), xy^2z(xy+1), z(xy+1)\right)$
3875	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y^2z^2}{x^3}$	3844: $\left(\frac{xy^2z^2}{(x+yz)^2}, \frac{y^3z^2}{(x+yz)^2}, z\right)$ 3857: $\left(\frac{y^2z}{x^2+yz}, \frac{x^2y}{x^2+yz}, \frac{y^2z^2}{x(x^2+yz)}\right)$ 4043: $\left(\frac{x}{(yz+1)(xz+1)}, \frac{y}{(yz+1)(xz+1)}, \frac{x^2z}{(yz+1)(xz+1)}\right)$ 4249: $\left(\frac{(xz+1)(xy+1)(x^2yz+1)}{x}, \frac{(xz+1)(xy+1)(x^2yz+1)}{x^2y}, \frac{(xz+1)(xy+1)(x^2yz+1)}{x^2z}\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
3901	$x+yz^3+3yz^2+3yz+y+2z+\frac{2}{z}+\frac{2}{yz}+\frac{2}{yz^2}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{6}{xyz}+\frac{6}{xyz^2}+\frac{2}{xyz^3}+\frac{1}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{1}{xy^2z^4}$	3447: $\left(\frac{(x+y)^2(x+y+z)}{x^2y^2}, \frac{x^2}{yz}, \frac{y}{x}\right)$ 4041: $\left(y+z, \frac{xz^3}{y^2(y+z)}, \frac{y}{z}\right)$ 4117: $\left(\frac{(x+y)^2}{y^2z}, \frac{x^3}{(x+y)^2}, \frac{y}{x}\right)$ 4159: $\left(\frac{x^2}{x+y+z}, \frac{z(x+y+z)}{xy^2}, \frac{y}{z}\right)$
3923	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{2x}{y^2}+y+z+\frac{3}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{2y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	3620: $\left(\frac{yz(x+y)^2}{x^3}, \frac{z(x+y)^2}{x^2}, \frac{(x+y)^2}{x^2y}\right)$
3933	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{4y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	3846: $\left(\frac{xy^2z+yz+1}{z}, \frac{xy^2z+yz+1}{xyz}, \frac{xy^2z+yz+1}{x}\right)$
3983	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3857: $\left(\frac{x^2+xyz+yz}{xz}, \frac{yz}{x}, x\right)$
4003	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2y^2z^2}{x}+\frac{2y^2z}{x}+\frac{8yz}{x}+\frac{4y}{x}+\frac{12}{x}+\frac{2}{xz}+\frac{8}{xyz}+\frac{2}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	3620: $\left(\frac{z(x+y)^3}{x^3}, \frac{(x+y)^3}{x^2y^2}, \frac{x^3y}{(x+y)^3}\right)$
4004	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{2}{y}+\frac{2}{yz}+\frac{4yz}{x}+\frac{4y}{x}+\frac{8}{x}+\frac{4}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{8}{x^2z}+\frac{3}{x^2yz^2}+\frac{4y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	3790: $\left(\frac{x+z(xy+1)^2}{xz}, \frac{x+z(xy+1)^2}{x^2}, \frac{x^2yz}{x+z(xy+1)^2}\right)$
4041	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y^2}{xz^2}+\frac{2y^2}{xz^3}+\frac{4y}{xz}+\frac{6y}{xz^2}+\frac{2}{x}+\frac{6}{xz}+\frac{2}{xy}+\frac{y^3}{x^2z^4}+\frac{3y^2}{x^2z^3}+\frac{3y}{x^2z^2}+\frac{1}{x^2z}$	3901: $\left(yz^2(z+1), \frac{xz}{z+1}, \frac{x}{z+1}\right)$
4043	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+4z+\frac{5}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3416: $\left(\frac{(z+1)^2}{xz^2}, y(z+1)^2, \frac{z}{y(z+1)^2}\right)$ 3875: $\left(\frac{(x+z)(x^2+yz)}{x^2}, \frac{y(x+z)(x^2+yz)}{x^3}, \frac{xz}{(x+z)(x^2+yz)}\right)$
4058	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{2x}{y}+\frac{4x}{yz}+\frac{2x}{y^2}+\frac{5x}{y^2z}+y+z+\frac{6}{z}+\frac{z}{y}+\frac{6}{y}+\frac{10}{yz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{10}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{5y}{x^2z}+\frac{y^2}{x^3z}$	3868: $\left(\frac{x^2yz+(x+yz)^2}{x^2z}, \frac{x^2yz+(x+yz)^2}{xyz^2}, x\right)$
4075	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2}+\frac{3x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	3505: $\left(\frac{(y+1)^2}{xy^3z}, \frac{(y+1)^2}{xy^2z}, \frac{1}{xy^2}\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
4076	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{2x}{y^2}+\frac{4x}{y^2z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3447: $\left(\frac{(x+y)^2}{yz},\frac{(x+y)^2}{xz},x\right)$ 4215: $\left(y,x,\frac{y^2z}{xy+x+y}\right)$ 4260: $\left(z,x,\frac{xyz^2}{(x+z)(xz+x+z)}\right)$
4117	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{2x}{y^2}+y+z+\frac{1}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{z}{y^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{6z}{x}+\frac{6}{x}+\frac{4z}{xy}+\frac{y^2z}{x^2}+\frac{6yz}{x^2}+\frac{2y}{x^2}+\frac{6z}{x^2}+\frac{2y^2z}{x^3}+\frac{4yz}{x^3}+\frac{y^2z}{x^4}$	3901: $\left(y(z+1)^2,yz(z+1)^2,\frac{(z+1)^2}{xz^2}\right)$
4159	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{2y^2}{xz^2}+\frac{6y}{x}+\frac{8y}{xz}+\frac{6z}{x}+\frac{12}{x}+\frac{2z^2}{xy}+\frac{8z}{xy}+\frac{2z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3901: $\left(\frac{xyz^2+z+1}{yz^2},\frac{xyz^2+z+1}{xy^2z^3},\frac{xyz^2+z+1}{xy^2z^4}\right)$
4160	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{2}{yz^2}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{2z}{xy}+\frac{8}{xy}+\frac{12}{xyz}+\frac{8}{xyz^2}+\frac{2}{xyz^3}+\frac{1}{xy^2}+\frac{4}{xy^2z}+\frac{6}{xy^2z^2}+\frac{4}{xy^2z^3}+\frac{1}{xy^2z^4}$	3845: $\left(\frac{(z+1)^3(xz+1)}{xyz^3},x,z\right)$
4169	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{2xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{6xz^2}{y^3}+y+z+\frac{8z}{y}+\frac{6}{y}+\frac{15z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{12}{x}+\frac{4}{xz}+\frac{20}{xy}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{y}{x^2z^2}+\frac{15}{x^2z}+\frac{2y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{y^2}{x^4z^3}$	3868: $\left(\frac{(x+yz)(x^2yz+(x+yz)^2)}{x^2y^2z},x,\frac{x^4y}{(x+yz)(x^2yz+(x+yz)^2)}\right)$
4170	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4y}{x}+\frac{6y}{xz}+\frac{4y}{xz^2}+\frac{y}{xz^3}+\frac{4z}{x}+\frac{12}{x}+\frac{12}{xz}+\frac{4}{xz^2}+\frac{6z}{xy}+\frac{12}{xy}+\frac{6}{xyz}+\frac{4z}{xy^2}+\frac{4}{xy^2}+\frac{z}{xy^3}$	3857: $\left(\frac{(x^2+xyz+yz)^2}{x^2yz^2},x,\frac{yz}{x}\right)$
4182	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y^2}{xz^2}+\frac{y^2}{xz^3}+\frac{3y}{x}+\frac{8y}{xz}+\frac{5y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{10}{xz}+\frac{z^2}{xy}+\frac{8z}{xy}+\frac{10}{xy}+\frac{2z^2}{xy^2}+\frac{5z}{xy^2}+\frac{z^2}{xy^3}$	3447: $\left(\frac{z(xy+x+y)^2}{x^2y^2},x,y\right)$ 4246: $\left(x,\frac{(yz+1)(xyz+(yz+1)^2)}{xy^2z^3},\frac{(yz+1)(xyz+(yz+1)^2)}{xyz^2}\right)$ 4278: $\left(x,\frac{xyz^2}{xyz+(y+z)^2},\frac{xy^2z}{xyz+(y+z)^2}\right)$ 4300: $\left(x,\frac{xy^3z^2}{(yz+1)(xyz+(yz+1)^2)},\frac{xy^2z}{(yz+1)(xyz+(yz+1)^2)}\right)$
4183	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{y^2z^3}{x}+\frac{2y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz^2}{x}+\frac{8yz}{x}+\frac{4y}{x}+\frac{6z}{x}+\frac{12}{x}+\frac{6}{xz}+\frac{4}{xy}+\frac{8}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	3505: $\left(z(y+1)(xy+1)^2,\frac{1}{xy^2},xy\right)$
4215	$\frac{x^2}{y^2z}+\frac{2x^2}{y^3z}+\frac{x^2}{y^4z}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{2x}{y^2}+\frac{8x}{y^2z}+\frac{5x}{y^3z}+y+z+\frac{3}{z}+\frac{6}{y}+\frac{12}{yz}+\frac{10}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{6}{x}+\frac{8}{xz}+\frac{10}{xyz}+\frac{2y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{y}{x^3z}$	4076: $\left(y,x,\frac{z(xy+x+y)}{x^2}\right)$

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Table 149 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 149a
4236	$xy^2+2xyz+2xy+xz^2+2xz+x+4y+4z+\frac{2y}{xz}+\frac{10}{x}+\frac{2}{xz}+\frac{4z}{xy}+\frac{4}{xy}+\frac{8}{x^2z}+\frac{12}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^3z^2}+\frac{14}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^3y^2z}+\frac{4}{x^4yz^2}+\frac{12}{x^4y^2z}+\frac{6}{x^5y^2z^2}+\frac{4}{x^5y^3z}+\frac{4}{x^6y^3z^2}+\frac{1}{x^7y^4z^2}$	3319: $\left(\frac{(1+z(xy+1)^2)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{(1+z(xy+1)^2)^2}, \frac{x^2yz}{(1+z(xy+1)^2)^2}\right)$ 3790: $\left(\frac{(x+z)(x+z(xy+1)^2)}{x^2y^2z}, \frac{x^3y^3z}{(x+z)(x+z(xy+1)^2)}, \frac{x^2y}{(x+z)(x+z(xy+1)^2)}\right)$
4241	$xy^2+2xyz+2xy+xz^2+2xz+x+4y+6z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{2y}{xz}+\frac{10}{x}+\frac{2}{xz}+\frac{8z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{6}{x^2z}+\frac{12}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{8}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3349: $\left(\frac{(x^2yz+xz+1)^2}{x^3y^2z^2}, \frac{x^4y^3z^2}{(x^2yz+xz+1)^2}, \frac{x^2y^2z}{(x^2yz+xz+1)^2}\right)$ 3846: $\left(\frac{(xy+yz+1)(xy^2z+yz+1)}{xy^3z}, \frac{x^2y^4z}{(xy+yz+1)(xy^2z+yz+1)}, \frac{xy^2}{(xy+yz+1)(xy^2z+yz+1)}\right)$
4246	$x+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{2y^2z^2}{x}+\frac{2y^2z}{x}+\frac{8yz}{x}+\frac{8y}{x}+\frac{12}{x}+\frac{12}{xz}+\frac{8}{xyz}+\frac{8}{xyz^2}+\frac{2}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{y^3z^2}{x^2}+\frac{6y^2z}{x^2}+\frac{15y}{x^2}+\frac{20}{x^2z}+\frac{15}{x^2yz^2}+\frac{6}{x^2y^2z^3}+\frac{1}{x^2y^3z^4}$	4182: $\left(x, \frac{xyz^3}{(y+z)(xyz+(y+z)^2)}, \frac{(y+z)(xyz+(y+z)^2)}{xy^2z^2}\right)$
4249	$x^3y^2z^2+2x^2y^2z+2x^2yz^2+2x^2yz+xy^2+6xyz+2xy+xz^2+2xz+x+6y+6z+\frac{2y}{xz}+\frac{10}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{6}{x^2z}+\frac{6}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{6}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3875: $\left(\frac{(x+z)(x+y)(x^2+yz)}{xy^2z^2}, \frac{x^2yz^2}{(x+z)(x+y)(x^2+yz)}, \frac{x^2y^2z}{(x+z)(x+y)(x^2+yz)}\right)$
4260	$\frac{x^2}{yz^2}+\frac{2x^2}{yz^3}+\frac{x^2}{yz^4}+x+\frac{2x}{z}+\frac{2x}{z^2}+\frac{4x}{yz}+\frac{10x}{yz^2}+\frac{6x}{yz^3}+y+z+\frac{6}{z}+\frac{6}{y}+\frac{20}{yz}+\frac{15}{yz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{4z}{xy}+\frac{20}{xy}+\frac{20}{xyz}+\frac{2z}{x^2}+\frac{z^2}{x^2y}+\frac{10z}{x^2y}+\frac{15}{x^2y}+\frac{2z^2}{x^3y}+\frac{6z}{x^3y}+\frac{z^2}{x^4y}$	4076: $\left(y, \frac{z(x+y)(xy+x+y)}{x^2y}, x\right)$
4278	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y^2}{xz^2}+\frac{2y^2}{xz^3}+\frac{8y}{xz}+\frac{10y}{xz^2}+\frac{12}{x}+\frac{20}{xz}+\frac{8z}{xy}+\frac{20}{xy}+\frac{2z^2}{xy^2}+\frac{10z}{xy^2}+\frac{2z^2}{xy^3}+\frac{y^3}{x^2z^4}+\frac{7y^2}{x^2z^3}+\frac{21y}{x^2z^2}+\frac{35}{x^2z}+\frac{35}{x^2y}+\frac{21z}{x^2y^2}+\frac{7z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	4182: $\left(x, \frac{xyz+(y+z)^2}{xy}, \frac{xyz+(y+z)^2}{xz}\right)$
4300	$x+yz^2+2yz+y+4z+\frac{6}{y}+\frac{2}{yz}+\frac{4}{y^2z}+\frac{1}{y^3z^2}+\frac{2y^2z^3}{x}+\frac{2y^2z^2}{x}+\frac{12yz^2}{x}+\frac{8yz}{x}+\frac{30z}{x}+\frac{12}{x}+\frac{40}{xy}+\frac{8}{xyz}+\frac{30}{xy^2z}+\frac{2}{xy^2z^2}+\frac{12}{xy^3z^2}+\frac{2}{xy^4z^3}+\frac{y^3z^4}{x^2}+\frac{8y^2z^3}{x^2}+\frac{28yz^2}{x^2}+\frac{56z}{x^2}+\frac{70}{x^2y}+\frac{56}{x^2y^2z}+\frac{28}{x^2y^3z^2}+\frac{8}{x^2y^4z^3}+\frac{1}{x^2y^5z^4}$	4182: $\left(x, \frac{(y+z)(xyz+(y+z)^2)}{xyz}, \frac{xy^2}{(y+z)(xyz+(y+z)^2)}\right)$

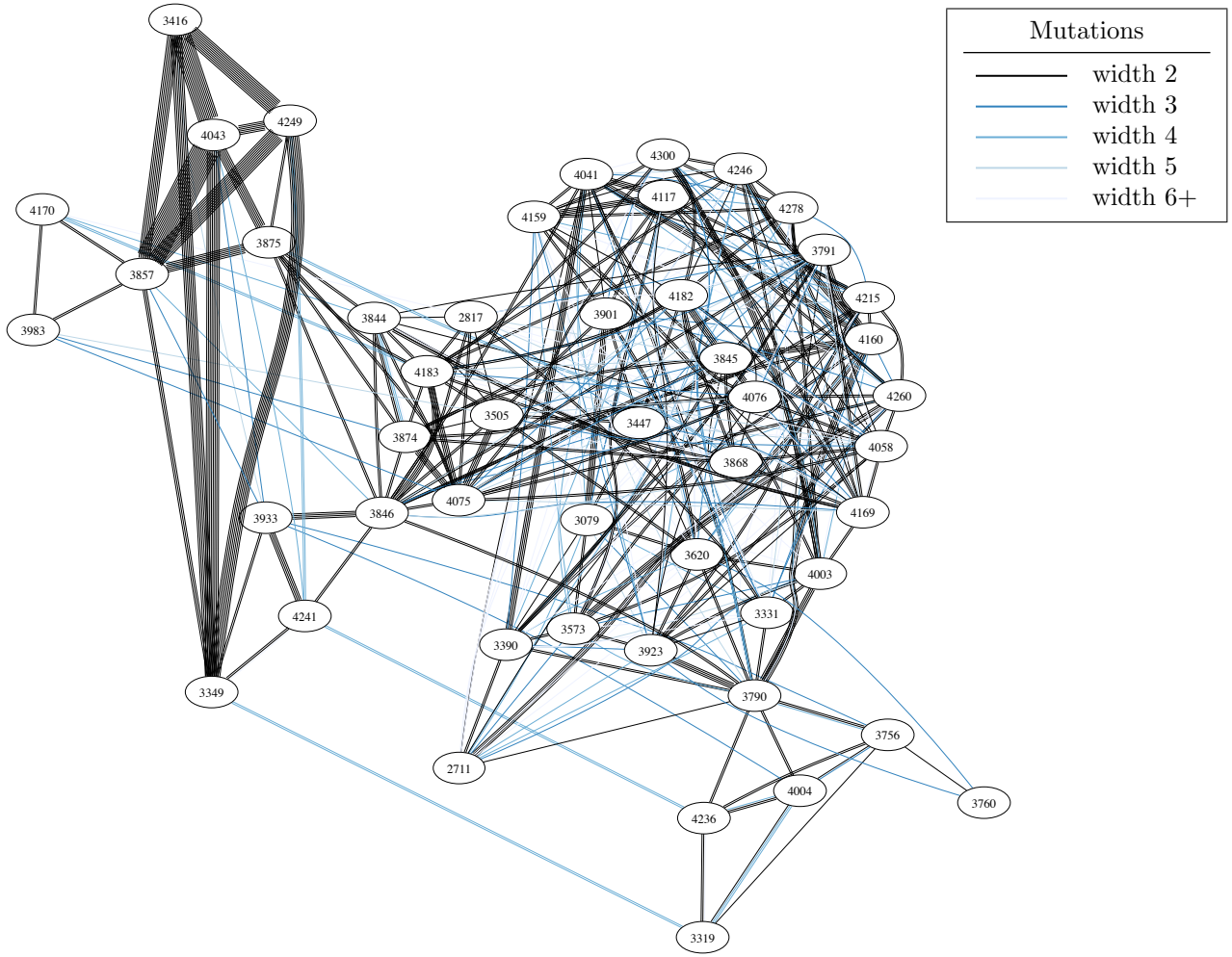

Figure 149b. All mutations between Minkowski polynomials in bucket 149

Bucket 150

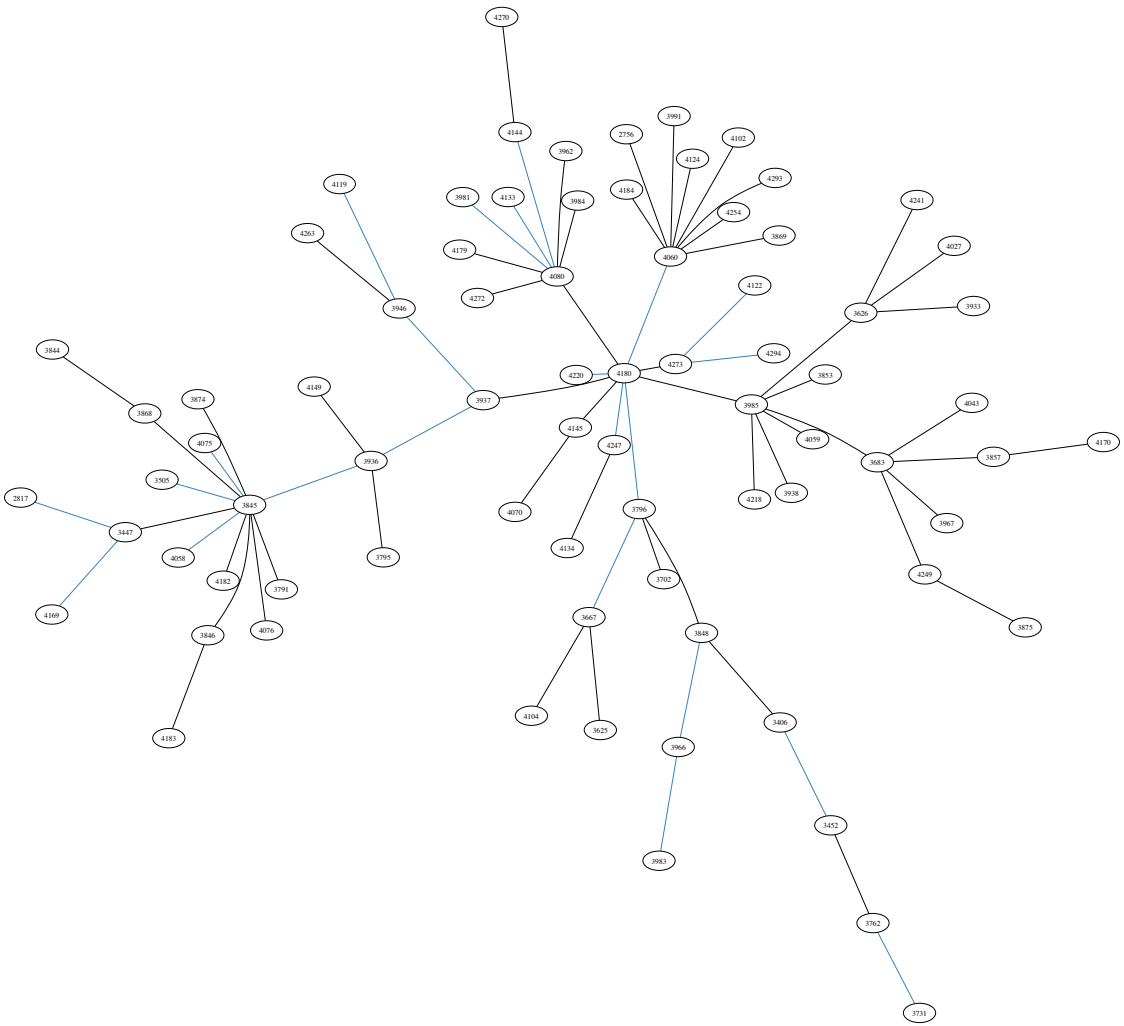

Figure 150a. Selected width-2 and width-3 mutations between Minkowski polynomials in bucket 150

Table 150. Laurent polynomials and selected mutations for bucket 150.

Node	Laurent polynomial	Mutations from Figure 150a
2756	$\frac{xy^3}{z}+xy^2+\frac{3xy^2}{z}+2xy+\frac{3xy}{z}+x+\frac{x}{z}+3y+z+\frac{2}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^3}$	4060: $\left(y, \frac{z}{x}, \frac{y(x+z)^2}{x^3}\right)$
2817	$\frac{x^2y^3}{z}+xy^2+\frac{4xy^2}{z}+3xy+x+2y+\frac{6y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{1}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}$	3447: $\left(\frac{x^2}{x+y}, \frac{x+y}{xy}, \frac{z(x+y)^2}{x^2y^2}\right)$
3406	$\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{yz}+yz+y+z+\frac{2}{z}+\frac{3}{y}+\frac{3yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{3yz}{x^2}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	3452: $\left(\frac{xy^2+z}{yz}, \frac{xy(xy^2+z)}{z^2}, x\right)$ 3848: $\left(x, \frac{xy}{z(x+1)}, z\right)$
3447	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{x}{y^2}+y+\frac{3y}{z}+z+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	2817: $\left(\frac{xy+1}{y}, \frac{xy+1}{xy^2}, \frac{z}{y^2}\right)$ 3845: $\left(yz, y, \frac{y(z+1)}{xz}\right)$ 4169: $\left(\frac{(xz+y)^3}{xy^3z}, \frac{(xz+y)^3}{x^2y^2z^2}, \frac{(xz+y)^6}{x^4y^4z^3}\right)$
3452	$\frac{x^3y^3}{z^2}+\frac{x^2y^3}{z^2}+\frac{3x^2y^2}{z}+\frac{x^2y}{z}+\frac{2xy^2}{z}+3xy+\frac{2xy}{z}+x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{2}{xy}+\frac{1}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^3}$	3406: $\left(z, \frac{x+y}{x^2}, \frac{z(x+y)^2}{x^3y}\right)$ 3762: $\left(\frac{(x^2z^2+xyz+y)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(x^2z^2+xyz+y)^2}, y\right)$
3505	$x^2y^3z+x^2y^2z+2xy^2z+xy^2+2xyz+2xy+x+yz+3y+z+\frac{2}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	3845: $\left(\frac{z+1}{yz^2}, z, \frac{y}{xz}\right)$
3625	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{3x}{y}+\frac{4x}{yz}+y+z+\frac{2}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	3667: $\left(\frac{y+x(z+1)^2}{xyz}, \frac{y+x(z+1)^2}{x^2z^2}, \frac{y+x(z+1)^2}{xy}\right)$
3626	$xz^2+2xz+x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{3}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2z^2}$	3933: $\left(\frac{xz+(y+z)^2}{y^2z}, \frac{xz+(y+z)^2}{xz^2}, \frac{xyz}{xz+(y+z)^2}\right)$ 3985: $\left(\frac{(y+z)(x+y+z)}{y^2z}, \frac{x}{z}, \frac{y}{x}\right)$ 4027: $\left(\frac{x^2}{xyz+x+y}, \frac{x^2yz}{xyz+x+y}, \frac{xyz+x+y}{xy}\right)$ 4241: $\left(\frac{(xy+xz+1)(x^2yz+(xz+1)^2)}{x^2z}, \frac{(xy+xz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{x^3yz}{(xy+xz+1)(x^2yz+(xz+1)^2)}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
3667	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{3xz^2}{y}+\frac{3xz}{y}+\frac{x}{y}+y+3z+\frac{2}{z}+\frac{z^2}{y}+\frac{3z}{y}+\frac{3}{y}+\frac{1}{yz}+\frac{2y}{xz}+\frac{2}{x}+\frac{3}{xz}+\frac{1}{xz^2}+\frac{y}{x^2z^2}$	3625: $\left(\frac{yz+(x+z)^2}{yz^2}, \frac{yz+(x+z)^2}{x^2z}, \frac{z}{x}\right)$ 3796: $\left(\frac{x(x+y)}{y^2z}, \frac{x^2}{x+y}, \frac{yz}{x+y}\right)$ 4104: $\left(\frac{(x^2z^2+xyz+y)(x^2z^2+y(xz+1)^2)}{x^3yz^2}, \frac{(x^2z^2+xyz+y)(x^2z^2+y(xz+1)^2)}{x^3y^2z^2}, \frac{1}{xz}\right)$
3683	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{1}{z}+\frac{2}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	3857: $\left(\frac{x^2+xz+yz}{x^2z}, \frac{x^2+xz+yz}{yz^2}, \frac{x^2+xz+yz}{x^3}\right)$ 3967: $\left(\frac{(y+z)(x+z)}{yz^2}, \frac{(y+z)(x+z)}{xz^2}, \frac{(y+z)(x+z)}{y^2z}\right)$ 3985: $\left(\frac{x}{z}, \frac{x+y+z}{yz}, \frac{x^2}{x+y+z}\right)$ 4043: $\left(\frac{(yz+1)(xz+yz+1)}{xy^2z^2}, \frac{(yz+1)(xz+yz+1)}{y^2z}, \frac{(yz+1)(xz+yz+1)}{x^2yz^2}\right)$ 4249: $\left(\frac{x^2y}{(x^2yz+1)(x^2yz+xy+1)}, \frac{x^4y^2z}{(x^2yz+1)(x^2yz+xy+1)}, \frac{x}{(x^2yz+1)(x^2yz+xy+1)}\right)$
3702	$\frac{x^2z}{y^2}+x+\frac{2xz}{y}+\frac{3x}{y}+\frac{xz}{y^2}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{z}{x}+\frac{2}{x}+\frac{1}{xz}$	3796: $\left(\frac{x^2}{x+yz+y}, \frac{xyz}{x+yz+y}, z\right)$
3731	$x+yz^3+3yz^2+3yz+y+2z+\frac{3}{z}+\frac{2}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{3z^2}{x}+\frac{6z}{x}+\frac{3}{x}+\frac{5}{xy}+\frac{6}{xyz}+\frac{3}{xy^2z^2}+\frac{3z}{x^2y}+\frac{3}{x^2y}+\frac{3}{x^2y^2z}+\frac{1}{x^3y^2}$	3762: $\left(x, y+z, \frac{xz}{y}\right)$
3762	$\frac{x^3z^3}{y^2}+\frac{x^3z^4}{y^3}+\frac{3x^2z^2}{y}+\frac{3x^2z^3}{y^2}+3xz+x+\frac{3xz^2}{y}+\frac{2xz}{y}+\frac{3xz^2}{y^2}+y+z+\frac{6z}{y}+\frac{3y}{xz}+\frac{3}{x}+\frac{2}{xz}+\frac{3}{xy}+\frac{3y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^3}+\frac{1}{x^3z^2}$	3452: $\left(\frac{(x^2y^2+xyz+z)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(x^2y^2+xyz+z)^2}\right)$ 3731: $\left(x, \frac{xy}{x+z}, \frac{yz}{x+z}\right)$
3791	$xz^2+2xz+x+y+3z+\frac{2}{z}+\frac{z^2}{y}+\frac{4z}{y}+\frac{6}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{1}{xyz^3}$	3845: $(x, y(z+1), z)$
3795	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2yz^2}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	3936: $\left(y, \frac{x^2y}{xy+x+yz}, \frac{xy+x+yz}{xyz}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
3796	$\frac{x^2}{y^2z}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2z}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{yz^2}{x^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{y}{x^2z}$	3667: $\left(\frac{y(xz+1)}{xz}, \frac{y(xz+1)}{x^2z^2}, z(xz+1)\right)$ 3702: $\left(\frac{xz+yz+y}{z}, \frac{y(xz+yz+y)}{xz^2}, z\right)$ 3848: $\left(\frac{(x+y+z)^2}{xyz}, \frac{(x+y+z)^2}{x^2y}, \frac{y}{z}\right)$ 4180: $\left(z, \frac{yz}{x}, \frac{(x+y)^2}{xy^2}\right)$
3844	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{4x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{6}{y}+\frac{4}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	3868: $\left(\frac{x+yz}{y}, x, \frac{z(x+yz)}{x^2}\right)$
3845	$xz^2+2xz+x+yz+y+3z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{1}{xy}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xyz^3}$	3447: $\left(\frac{y(x+y)}{xz}, y, \frac{x}{y}\right)$ 3505: $\left(\frac{y+1}{xy^3z}, \frac{y+1}{xy^2}, y\right)$ 3791: $\left(x, \frac{y}{z+1}, z\right)$ 3846: $\left(x, \frac{y+1}{y^2z}, y\right)$ 3868: $\left(\frac{(x+yz)(xy+x+yz)}{x^3}, y, \frac{x}{yz}\right)$ 3874: $\left(\frac{x+yz+z}{x^2}, \frac{yz}{x}, \frac{x}{z}\right)$ 3936: $\left(\frac{z(x+yz)}{x^2}, z, \frac{xy}{x+yz}\right)$ 4058: $\left(\frac{y^2}{x+y}, \frac{yz}{x+y}, \frac{x}{y}\right)$ 4075: $\left(\frac{y^2}{x+y}, \frac{yz(x+y)}{x^2}, \frac{x}{y}\right)$ 4076: $\left(\frac{y^2}{x+y}, \frac{yz}{x}, \frac{x}{y}\right)$ 4182: $\left(\frac{(y+z)(yz+y+z)^2}{xy^3z}, z, \frac{y}{z}\right)$
3846	$xy^2+2xy+x+y^2z+2yz+3y+z+\frac{1}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^3z}$	3845: $\left(x, z, \frac{z+1}{yz^2}\right)$ 4183: $\left(\frac{(z+1)^2(yz+1)^2}{xy^2z^3}, yz, \frac{1}{yz^2}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
3848	$\frac{x^2}{yz}+x+\frac{2x}{z}+\frac{3x}{y}+\frac{x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{2y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{4}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{z^2}{x^2y}$	3406: $\left(x, \frac{yz(x+1)}{x}, z\right)$ 3796: $\left(\frac{(x+yz+y)^2}{xy^2z}, \frac{(x+yz+y)^2}{x^2y}, \frac{(x+yz+y)^2}{x^2yz}\right)$ 3966: $\left(z, \frac{xz}{z+1}, \frac{yz}{z+1}\right)$
3853	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{z}{xy}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{2z}{x^2}+\frac{yz}{x^3}$	3985: $\left(\frac{(x+y)(x+y+z)}{xyz}, \frac{(x+y)(x+y+z)}{xy^2}, \frac{(x+y)(x+y+z)}{x^2z}\right)$
3857	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{4x}{yz}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{4}{x}+\frac{2yz}{x^2}+\frac{y}{x^2}+\frac{z}{x^2}+\frac{yz}{x^3}$	3683: $\left(\frac{x^2+xy+yz}{y^2z}, \frac{x(x^2+xy+yz)}{y^2z^2}, \frac{x^2+xy+yz}{x^2y}\right)$ 4170: $\left(y, \frac{xy^2z^2}{(yz+y+z)^2}, \frac{(yz+y+z)^2}{xyz}\right)$
3868	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	3844: $\left(y, \frac{y(x+yz)}{x^2}, \frac{xyz}{x+yz}\right)$ 3845: $\left(\frac{(z+1)(yz+z+1)}{xz^2}, y, \frac{(z+1)(yz+z+1)}{xyz^3}\right)$
3869	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+2yz+y+z+\frac{1}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{y^2z^2}{x}+\frac{2y^2z}{x}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2}{x}+\frac{y^3z^2}{x^2}+\frac{y^2z}{x^2}$	4060: $\left(y, \frac{xy^2z^2}{(x+yz)^2}, \frac{(x+yz)^2}{y^2z^3}\right)$
3874	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{3x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{3x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	3845: $\left(\frac{yz+z+1}{xz}, yz, \frac{yz+z+1}{xz^2}\right)$
3875	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y^2z^2}{x^3}$	4249: $\left(\frac{x^5y^2z^2}{(xz+1)(xy+1)(x^2yz+1)}, \frac{x^4y^2z}{(xz+1)(xy+1)(x^2yz+1)}, \frac{x^4yz^2}{(xz+1)(xy+1)(x^2yz+1)}\right)$
3933	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{5y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{2z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	3626: $\left(\frac{xyz^2+(yz+1)^2}{y}, \frac{xyz^2+(yz+1)^2}{xyz}, \frac{xyz^2+(yz+1)^2}{xy^2z^2}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
3936	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{x}{y}+\frac{4x}{yz}+\frac{3x}{yz^2}+\frac{2x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{3}{xy}+\frac{yz^2}{x^2}+\frac{z}{x^2}$	3795: $\left(\frac{xyz+x+yz}{xz}, x, \frac{xyz+x+yz}{xyz^2}\right)$ 3845: $\left(\frac{y(xz+1)}{x}, z(xz+1), y\right)$ 3937: $\left(\frac{xyz}{yz+1}, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$ 4149: $\left(\frac{(yz+y+1)^3}{xy^3z^2}, y, \frac{(yz+y+1)^3}{xy^3z}\right)$
3937	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{3y}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{y^2z}{x^2}+\frac{2y}{x^2}+\frac{1}{x^2z}$	3936: $\left(\frac{x(yz+1)}{yz}, \frac{yz+1}{y}, \frac{y^2z}{yz+1}\right)$ 3946: $\left(\frac{x(yz+1)}{yz}, y, z\right)$ 4180: $\left(x, y, \frac{xz}{x+y}\right)$
3938	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{4x}{y^2z}+\frac{2x}{y^2z^2}+y+z+\frac{2}{z}+\frac{6}{y}+\frac{6}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	3985: $\left(\frac{(x+y)^2(x+y+z)}{x^2yz}, \frac{(x+y)^2(x+y+z)}{x^2y^2}, \frac{x}{z}\right)$
3946	$x+\frac{x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2}+\frac{5x}{y^2z}+\frac{3x}{y^2z^2}+\frac{2x}{y^3z}+\frac{3x}{y^3z^2}+\frac{x}{y^4z^2}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{y^2z}{x^2}$	3937: $\left(\frac{xyz}{yz+1}, y, z\right)$ 4119: $\left(\frac{xz^2}{(z+1)^2}, z, \frac{x}{y}\right)$ 4263: $\left(\frac{xy^2z}{y^2+z(y+1)^2}, y, \frac{xy^2}{y^2+z(y+1)^2}\right)$
3962	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{y}{x}+\frac{4y}{xz}+\frac{2y}{xz^2}+\frac{3}{x}+\frac{5}{xz}+\frac{1}{xz^2}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	4080: $\left(\frac{(z+1)(x+yz+y)}{y^2z}, z, \frac{yz}{x}\right)$
3966	$x+\frac{x}{z}+\frac{x}{y}+\frac{x}{yz}+y+\frac{2y}{z}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	3848: $\left(\frac{y(x+1)}{x}, \frac{z(x+1)}{x}, x\right)$ 3983: $\left(x, \frac{x+1}{z}, \frac{x+1}{y}\right)$
3967	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3683: $\left(\frac{z(x+y)}{x}, x+y, \frac{yz(x+y)}{x^2}\right)$
3981	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{4x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+\frac{y}{z}+z+\frac{4}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{yz}{x^2}$	4080: $\left(\frac{xz}{z+1}, z, y\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
3983	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{3}{xy}+\frac{z}{xy^2}$	3966: $\left(x, \frac{x+1}{z}, \frac{x+1}{y}\right)$
3984	$\frac{x^2}{yz}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{2x}{yz}+y+\frac{y}{z}+z+\frac{2}{z}+\frac{z}{y}+\frac{4}{y}+\frac{1}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{2z}{xy}+\frac{2}{xy}+\frac{yz}{x^2}+\frac{2z}{x^2}+\frac{z}{x^2y}$	4080: $\left(z, \frac{(z+1)(x+y)}{xy}, \frac{yz}{x}\right)$
3985	$x+\frac{x}{z}+\frac{2x}{y}+\frac{x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	3626: $\left(\frac{(yz+1)(yz+y+1)}{xyz^2}, \frac{(yz+1)(yz+y+1)}{xyz}, \frac{(yz+1)(yz+y+1)}{xy^2z^2}\right)$ 3683: $\left(\frac{x^2+xyz+yz}{xy}, \frac{x^2+xyz+yz}{y^2z}, \frac{x^2+xyz+yz}{x^2y}\right)$ 3853: $\left(\frac{(x+z)(x^2+xz+yz)}{xyz^2}, \frac{(x+z)(x^2+xz+yz)}{x^2yz}, \frac{(x+z)(x^2+xz+yz)}{x^3z}\right)$ 3938: $\left(\frac{(x+yz)^2(x+yz+y)}{x^2y^2z}, \frac{(x+yz)^2(x+yz+y)}{xy^3z^2}, \frac{(x+yz)^2(x+yz+y)}{x^2y^2z^2}\right)$ 4059: $\left(\frac{(x+y)(x+yz)(xz+x+yz)}{x^2y^2z}, \frac{(x+y)(x+yz)(xz+x+yz)}{x^3yz}, \frac{(x+y)(x+yz)(xz+x+yz)}{x^2y^2z^2}\right)$ 4180: $\left(x, y, \frac{(x+y)(xy+x+y)}{xyz}\right)$ 4218: $\left(\frac{xy}{yz+y+1}, \frac{xyz}{yz+y+1}, \frac{x}{yz+y+1}\right)$
3991	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+y+z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{4}{x}+\frac{1}{xy}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{2z}{x^2}+\frac{yz^2}{x^3}$	4060: $\left(\frac{xyz}{x+yz}, y, \frac{x^2}{x+yz}\right)$
4027	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+5z+\frac{4}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{8}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{5}{x^2z}+\frac{4y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	3626: $\left(\frac{xz+yz+1}{z}, \frac{xz+yz+1}{xz^2}, \frac{yz^2}{xz+yz+1}\right)$
4043	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+5z+\frac{6}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{5}{xyz}+\frac{1}{xy^2z^2}+\frac{y}{x^2}+\frac{2}{x^2z}+\frac{1}{x^2yz^2}$	3683: $\left(\frac{x^2+xz+yz}{x}, \frac{y(x^2+xz+yz)}{x^2}, \frac{x^3}{yz(x^2+xz+yz)}\right)$
4058	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{4x}{yz}+\frac{2x}{y^2}+\frac{5x}{y^2z}+y+z+\frac{6}{z}+\frac{z}{y}+\frac{6}{y}+\frac{10}{yz}+\frac{2y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{10}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{5y}{x^2z}+\frac{y^2}{x^3z}$	3845: $(xz(z+1), x(z+1), y(z+1))$
4059	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{5}{y}+\frac{5}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{7}{x}+\frac{3}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{y^2z}{x^3}$	3985: $\left(\frac{(y+z)(x+y)(x+y+z)}{xy^2z}, \frac{(y+z)(x+y)(x+y+z)}{x^2yz}, \frac{x}{z}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
4060	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{2x}{y^2z^2}+y+z+\frac{3}{z}+\frac{2}{y}+\frac{6}{yz}+\frac{1}{y^2z}+\frac{2yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xy}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{3z}{x^2}+\frac{yz^2}{x^3}$	2756: $\left(\frac{x(y+1)^2}{z}, x, \frac{xy(y+1)^2}{z}\right)$ 3869: $\left(\frac{(yz+1)(x+yz)}{y^2z}, x, \frac{(yz+1)(x+yz)}{y^3z^2}\right)$ 3991: $\left(\frac{(x+z)^2(x+yz)}{x^3z}, y, \frac{(x+z)^2(x+yz)}{x^2yz^2}\right)$ 4102: $\left(x, \frac{xy}{x+z+1}, \frac{x+z+1}{yz}\right)$ 4124: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xy^2z}{xyz+x+yz}\right)$ 4180: $\left(z, \frac{x^2}{x+y}, \frac{yz}{x}\right)$ 4184: $\left(y, \frac{xy^2z+(x+yz)^2}{xy^2z^2}, \frac{x^2y^2z}{xy^2z+(x+yz)^2}\right)$ 4254: $\left(x, \frac{xy^3}{(y+z)(xy+y+z)}, \frac{(y+z)(xy+y+z)}{y^2z}\right)$ 4293: $\left(y, \frac{(xyz+xz+y)(xy^2z+(xz+y)^2)}{x^2y^3z}, \frac{x^3y^3z^2}{(xyz+xz+y)(xy^2z+(xz+y)^2)}\right)$
4070	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{2x}{y^2z}+\frac{2x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{3y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{3}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	4145: $\left(x, \frac{xy+y+z}{yz}, \frac{xy^2}{xy+y+z}\right)$
4075	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{2x}{yz}+\frac{2x}{y^2}+\frac{3x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	3845: $\left(xz(z+1), x(z+1), \frac{yz^2}{z+1}\right)$
4076	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{3x}{yz}+\frac{2x}{y^2}+\frac{4x}{y^2z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3845: $(xz(z+1), x(z+1), yz)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
4080	$x+\frac{x}{z}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{x}{y^2z}+y+\frac{y}{z}+z+\frac{4}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	3962: $\left(\frac{(y+1)(yz+y+z)}{xz^2},\frac{(y+1)(yz+y+z)}{xyz},y\right)$ 3981: $\left(\frac{x(y+1)}{y},z,y\right)$ 3984: $\left(\frac{(x+1)(x+z)}{yz},\frac{(x+1)(x+z)}{xy},x\right)$ 4133: $\left(\frac{xz}{z+1},y,z\right)$ 4144: $\left(y,\frac{xyz}{x+yz},\frac{yz}{x}\right)$ 4179: $\left(\frac{(z+1)(x+y)(x+yz+y)}{xy^2z},\frac{(z+1)(x+y)(x+yz+y)}{x^2yz},z\right)$ 4180: $\left(x,y,\frac{(xy+x+y)^2}{xy^2z}\right)$ 4272: $\left(\frac{(y+1)(y+z)^2(yz+y+z)}{xy^2z^2},\frac{(y+1)(y+z)^2(yz+y+z)}{xy^3z},y\right)$
4102	$x+\frac{x}{yz}+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2z^2}{x}+\frac{6z}{x}+\frac{6}{x}+\frac{2}{xz}+\frac{3z}{xy}+\frac{8}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{z^2}{x^2y}+\frac{4z}{x^2y}+\frac{6}{x^2y}+\frac{4}{x^2yz}+\frac{1}{x^2yz^2}$	4060: $\left(x,\frac{xyz+x+yz}{xz},\frac{x}{yz}\right)$
4104	$xz^2+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+yz+y+6z+\frac{5z}{y}+\frac{5y}{x}+\frac{3y}{xz}+\frac{12}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{10y}{x^2z}+\frac{3y}{x^2z^2}+\frac{10}{x^2z}+\frac{10y}{x^3z^2}+\frac{y}{x^3z^3}+\frac{3}{x^3z^2}+\frac{5y}{x^4z^3}+\frac{y}{x^5z^4}$	3667: $\left(\frac{(xz^2+xz+y)(y+x(z+1)^2)}{x^2yz^2},\frac{x}{y},\frac{x^2yz}{(xz^2+xz+y)(y+x(z+1)^2)}\right)$
4119	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{6y}{xz}+\frac{3y}{xz^2}+\frac{3z}{x}+\frac{9}{x}+\frac{9}{xz}+\frac{3}{xz^2}+\frac{z^2}{xy}+\frac{4z}{xy}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xyz^2}$	3946: $\left(\frac{x(y+1)^2}{y^2},\frac{x(y+1)^2}{y^2z},y\right)$
4122	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{y^2z}+\frac{yz^2}{x}+\frac{3yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{4z}{x}+\frac{9}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{6}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{4}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^3z^2}$	4273: $\left(x,\frac{(y+z)^2}{yz^2},\frac{y^2z}{(y+z)^2}\right)$
4124	$\frac{x^2}{y^2z}+\frac{2x^2}{y^3z^2}+\frac{x^2}{y^4z^3}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{6x}{y^2z}+\frac{2x}{y^2z^2}+\frac{4x}{y^3z^2}+y+z+\frac{1}{z}+\frac{6}{y}+\frac{6}{yz}+\frac{6}{y^2z}+\frac{2yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xy}+\frac{y^2z}{x^2}+\frac{2yz}{x^2}+\frac{z}{x^2}$	4060: $\left(x,\frac{xyz+x+yz}{xy},\frac{xy^2z}{xyz+x+yz}\right)$
4133	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{y}{z}+z+\frac{4}{z}+\frac{z}{y}+\frac{4}{y}+\frac{3}{yz}+\frac{yz}{x}+\frac{4y}{x}+\frac{5y}{xz}+\frac{2y}{xz^2}+\frac{2z}{x}+\frac{7}{x}+\frac{8}{xz}+\frac{3}{xz^2}+\frac{yz}{x^2}+\frac{4y}{x^2}+\frac{6y}{x^2z}+\frac{4y}{x^2z^2}+\frac{y}{x^2z^3}$	4080: $\left(\frac{x(z+1)}{z},y,z\right)$
4134	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{y}{xz^2}+\frac{3z}{x}+\frac{9}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	4247: $\left(x,\frac{xy^2z}{xyz+(y+z)^2},\frac{xyz^2}{xyz+(y+z)^2}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
4144	$x+\frac{x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^2z^3}+y+z+\frac{4}{z}+\frac{z}{y}+\frac{5}{y}+\frac{7}{yz}+\frac{3}{yz^2}+\frac{yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{3}{xz}+\frac{yz}{x^2}+\frac{y}{x^2}$	4080: $\left(\frac{y(z+1)}{z}, x, \frac{y(z+1)}{x}\right)$ 4270: $\left(\frac{(z+1)(y+1)(y+z+1)^2}{xyz^2}, \frac{(z+1)(y+1)(y+z+1)^2}{xy^2z}, y\right)$
4145	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{3z}{y}+\frac{5}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{2y}{xz}+\frac{y}{xz^2}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{6z}{xy}+\frac{6}{xy}+\frac{2z^2}{xy^2}+\frac{4z}{xy^2}+\frac{z^2}{xy^3}$	4070: $\left(x, \frac{xyz+x+yz}{xy}, \frac{xyz+x+yz}{y^2z}\right)$ 4180: $\left(\frac{(x+y)(xy+x+y)^2}{x^2y^2z}, x, y\right)$
4149	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{4}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{4z}{xy}+\frac{12}{xy}+\frac{12}{xyz}+\frac{4}{xyz^2}+\frac{6}{xy^2}+\frac{12}{xy^2z}+\frac{6}{xy^2z^2}+\frac{4}{xy^3z}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^2}$	3936: $\left(\frac{(xy+x+yz)^3}{x^2y^3z^2}, y, \frac{z}{x}\right)$
4169	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{3xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{6xz^2}{y^3}+y+z+\frac{8z}{y}+\frac{6}{y}+\frac{15z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{12}{x}+\frac{4}{xz}+\frac{20}{xy}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{y}{x^2z^2}+\frac{15}{x^2z}+\frac{2y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{y^2}{x^4z^3}$	3447: $\left(\frac{(x+y)^3}{xyz}, \frac{(x+y)^3}{x^2y^2}, \frac{z}{y^2}\right)$
4170	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4y}{x}+\frac{6y}{xz}+\frac{4y}{xz^2}+\frac{y}{xz^3}+\frac{4z}{x}+\frac{12}{x}+\frac{12}{xz}+\frac{4}{xz^2}+\frac{6z}{xy}+\frac{12}{xy}+\frac{6}{xyz}+\frac{4z}{xy^2}+\frac{4}{xy^2}+\frac{z}{xy^3}$	3857: $\left(\frac{(x^2+xyz+yz)^2}{x^2yz^2}, x, \frac{yz}{x}\right)$
4179	$x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{4}{z}+\frac{z}{y}+\frac{5}{y}+\frac{7}{yz}+\frac{3}{yz^2}+\frac{yz}{x}+\frac{3y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{7}{x}+\frac{8}{xz}+\frac{3}{xz^2}+\frac{yz}{x^2}+\frac{3y}{x^2}+\frac{3y}{x^2z}+\frac{y}{x^2z^2}$	4080: $\left(\frac{(z+1)(x+y)(x+yz+y)}{xy^2z}, \frac{(z+1)(x+y)(x+yz+y)}{x^2yz}, z\right)$
4180	$x+\frac{x}{z}+\frac{2x}{y}+\frac{3x}{yz}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{x}{y^3z}+y+\frac{y}{z}+z+\frac{6}{z}+\frac{4}{y}+\frac{9}{yz}+\frac{4}{y^2z}+\frac{yz}{x}+\frac{3y}{x}+\frac{3y}{xz}+\frac{5}{x}+\frac{9}{xz}+\frac{6}{xyz}+\frac{2y}{x^2}+\frac{3y}{x^2z}+\frac{4}{x^2z}+\frac{y}{x^3z}$	3796: $\left(\frac{(x+y)^2}{y^2z}, \frac{(x+y)^2}{xyz}, x\right)$ 3937: $\left(x, y, \frac{z(x+y)}{x}\right)$ 3985: $\left(x, y, \frac{(x+y)(xy+x+y)}{xyz}\right)$ 4060: $\left(\frac{y(x+z)}{x}, \frac{yz(x+z)}{x^2}, x\right)$ 4080: $\left(x, y, \frac{(xy+x+y)^2}{xy^2z}\right)$ 4145: $\left(y, z, \frac{(y+z)(yz+y+z)^2}{xy^2z^2}\right)$ 4220: $\left(y(z+1), yz(z+1), \frac{x}{z+1}\right)$ 4247: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, y\right)$ 4273: $\left(y, z, \frac{(y+z)(yz+y+z)^3}{xy^3z^3}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
4182	$x+y+\frac{3y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y^2}{xz^2}+\frac{y^2}{xz^3}+\frac{3y}{x}+\frac{8y}{xz}+\frac{5y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{10}{xz}+\frac{z^2}{xy}+\frac{8z}{xy}+\frac{10}{xy}+\frac{2z^2}{xy^2}+\frac{5z}{xy^2}+\frac{z^2}{xy^3}$	3845: $\left(\frac{(z+1)(yz+z+1)^2}{xyz^3}, yz, y\right)$
4183	$x+yz^2+3yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{2}{yz}+\frac{1}{yz^2}+\frac{y^2z^3}{x}+\frac{2y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz^2}{x}+\frac{8yz}{x}+\frac{4y}{x}+\frac{6z}{x}+\frac{12}{x}+\frac{6}{xz}+\frac{4}{xy}+\frac{8}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	3846: $\left(\frac{(y+1)^2(yz+1)^2}{xy^3z}, y^2z, \frac{1}{yz}\right)$
4184	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{2x}{y^2z}+\frac{x}{y^2z^2}+\frac{x}{y^3z^2}+y+z+\frac{1}{z}+\frac{6}{y}+\frac{5}{yz}+\frac{5}{y^2z}+\frac{3yz}{x}+\frac{2y}{x}+\frac{6z}{x}+\frac{9}{x}+\frac{10}{xy}+\frac{y^2z}{x^2}+\frac{2yz^2}{x^2}+\frac{7yz}{x^2}+\frac{10z}{x^2}+\frac{2y^2z^2}{x^3}+\frac{5yz^2}{x^3}+\frac{y^2z^3}{x^4}$	4060: $\left(\frac{x^2yz+(x+yz)^2}{x^2y}, x, \frac{x^2yz+(x+yz)^2}{x^2y^2z}\right)$
4218	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{3z^2}{x}+\frac{10z}{x}+\frac{12}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{3z}{xy}+\frac{8}{xy}+\frac{7}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	3985: $\left(x+y+z, \frac{x}{z}, \frac{y}{x}\right)$
4220	$x+yz^2+2yz+y+3z+\frac{2}{z}+\frac{2}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{yz^3}{x}+\frac{3yz^2}{x}+\frac{3yz}{x}+\frac{y}{x}+\frac{3z^2}{x}+\frac{9z}{x}+\frac{9}{x}+\frac{3}{xz}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{xy^2z^3}$	4180: $\left(\frac{z(x+y)}{x}, \frac{x^2}{x+y}, \frac{y}{x}\right)$
4241	$xy^2+2xyz+2xy+xz^2+2xz+x+5y+7z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{2y}{xz}+\frac{12}{x}+\frac{2}{xz}+\frac{9z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{7}{x^2z}+\frac{14}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{9}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3626: $\left(\frac{(xz+1)(xz+yz+1)}{xz^2}, \frac{x^2z^3}{(xz+1)(xz+yz+1)}, \frac{xyz^3}{(xz+1)(xz+yz+1)}\right)$
4247	$x+\frac{x}{y}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3z}{y^2}+\frac{y^2}{xz^2}+\frac{5y}{xz}+\frac{3y}{xz^2}+\frac{9}{x}+\frac{12}{xz}+\frac{7z}{xy}+\frac{18}{xy}+\frac{2z^2}{xy^2}+\frac{12z}{xy^2}+\frac{3z^2}{xy^3}+\frac{y^2}{x^2z^3}+\frac{6y}{x^2z^2}+\frac{15}{x^2z}+\frac{20}{x^2y}+\frac{15z}{x^2y^2}+\frac{6z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	4134: $\left(x, \frac{xyz+(y+z)^2}{xz}, \frac{xyz+(y+z)^2}{xy}\right)$ 4180: $\left(x+y, z, \frac{yz}{x}\right)$
4249	$x^3y^2z^2+2x^2y^2z+2x^2yz^2+2x^2yz+xy^2+7xyz+2xy+xz^2+2xz+x+7y+7z+\frac{2y}{xz}+\frac{12}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{7}{x^2z}+\frac{7}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{7}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3683: $\left(\frac{(x+z)(x^2+yz)(x^2+xy+yz)}{x^2y^2z^2}, \frac{y^3z^3}{(x+z)(x^2+yz)(x^2+xy+yz)}, \frac{x^3yz^2}{(x+z)(x^2+yz)(x^2+xy+yz)}\right)$ 3875: $\left(\frac{(x+z)(x+y)(x^2+yz)}{x^3}, \frac{x^4}{z(x+z)(x+y)(x^2+yz)}, \frac{x^4}{y(x+z)(x+y)(x^2+yz)}\right)$
4254	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{5}{z}+\frac{3z}{y}+\frac{7}{y}+\frac{3z}{y^2}+\frac{2y}{xz}+\frac{2y}{xz^2}+\frac{6}{x}+\frac{9}{xz}+\frac{6z}{xy}+\frac{15}{xy}+\frac{2z^2}{xy^2}+\frac{11z}{xy^2}+\frac{3z^2}{xy^3}+\frac{y}{x^2z^2}+\frac{5}{x^2z}+\frac{10}{x^2y}+\frac{10z}{x^2y^2}+\frac{5z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	4060: $\left(x, \frac{(x+yz)(xyz+x+yz)}{xyz^2}, \frac{(x+yz)(xyz+x+yz)}{y^2z^3}\right)$
4263	$x+y+\frac{2y}{z}+z+\frac{4z}{y}+\frac{4}{y}+\frac{5z}{y^2}+\frac{2z}{y^3}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{5y}{xz}+\frac{3z}{x}+\frac{12}{x}+\frac{4}{xz}+\frac{z^2}{xy}+\frac{13z}{xy}+\frac{15}{xy}+\frac{5z^2}{xy^2}+\frac{21z}{xy^2}+\frac{6}{xy^2}+\frac{10z^2}{xy^3}+\frac{15z}{xy^3}+\frac{10z^2}{xy^4}+\frac{4z}{xy^4}+\frac{5z^2}{xy^5}+\frac{z^2}{xy^6}$	3946: $\left(\frac{y^2z+x(y+1)^2}{y^2}, y, \frac{x}{z}\right)$

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Table 150 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 150a
4270	$x+y+\frac{2y}{z}+z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{7y}{xz}+\frac{4y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{15}{xz}+\frac{6}{xz^2}+\frac{z^2}{xy}+\frac{7z}{xy}+\frac{15}{xy}+\frac{13}{xyz}+\frac{4}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	4144: $\left(\frac{(z+1)(x+yz)(xz+x+yz)^2}{x^2y^2z^3}, z, \frac{yz}{x}\right)$
4272	$x+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{y^2}{xz^2}+\frac{3y}{x}+\frac{6y}{xz}+\frac{2y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{9}{xz}+\frac{1}{xz^2}+\frac{z^2}{xy}+\frac{10z}{xy}+\frac{15}{xy}+\frac{4}{xyz}+\frac{3z^2}{xy^2}+\frac{11z}{xy^2}+\frac{6}{xy^2}+\frac{3z^2}{xy^3}+\frac{4z}{xy^3}+\frac{z^2}{xy^4}$	4080: $\left(\frac{(z+1)(x+y)^2(x+yz+y)}{x^2y^2z}, z, \frac{yz}{x}\right)$
4273	$x+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{4}{z}+\frac{3z}{y}+\frac{5}{y}+\frac{2z}{y^2}+\frac{y}{x}+\frac{3y}{xz}+\frac{3y}{xz^2}+\frac{y}{xz^3}+\frac{2z}{x}+\frac{9}{x}+\frac{12}{xz}+\frac{5}{xz^2}+\frac{z^2}{xy}+\frac{9z}{xy}+\frac{18}{xy}+\frac{10}{xyz}+\frac{3z^2}{xy^2}+\frac{12z}{xy^2}+\frac{10}{xy^2}+\frac{3z^2}{xy^3}+\frac{5z}{xy^3}+\frac{z^2}{xy^4}$	4122: $\left(x, \frac{(yz+1)^2}{y}, \frac{(yz+1)^2}{y^2z}\right)$ 4180: $\left(\frac{(x+y)(xy+x+y)^3}{x^3y^3z}, x, y\right)$ 4294: $\left(y, \frac{x^2}{x+yz}, \frac{xyz}{x+yz}\right)$
4293	$x+\frac{2xz}{y}+\frac{xz^2}{y^2}+\frac{2xz}{y^2}+\frac{2xz^2}{y^3}+\frac{xz^2}{y^4}+y+z+\frac{6z}{y}+\frac{6}{y}+\frac{11z}{y^2}+\frac{6z}{y^3}+\frac{2y}{x}+\frac{3y}{xz}+\frac{12}{x}+\frac{6}{xz}+\frac{24}{xy}+\frac{15}{xy^2}+\frac{y^2}{x^2z}+\frac{10y}{x^2z}+\frac{2y}{x^2z^2}+\frac{26}{x^2z}+\frac{20}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{14y}{x^3z^2}+\frac{15}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{6y}{x^4z^3}+\frac{y^2}{x^5z^4}$	4060: $\left(\frac{(xyz+x+yz)(x^2yz+(x+yz)^2)}{x^3y^2z}, x, \frac{x^3y^3z^2}{(xyz+x+yz)(x^2yz+(x+yz)^2)}\right)$
4294	$x+\frac{x}{y}+\frac{2x}{yz}+\frac{3x}{y^2z}+\frac{x}{y^2z^2}+\frac{3x}{y^3z^2}+\frac{x}{y^4z^3}+y+z+\frac{9}{y}+\frac{5}{yz}+\frac{15}{y^2z}+\frac{7}{y^3z^2}+\frac{3yz}{x}+\frac{9z}{x}+\frac{9}{x}+\frac{30}{xy}+\frac{21}{xy^2z}+\frac{3yz^2}{x^2}+\frac{7yz}{x^2}+\frac{30z}{x^2}+\frac{35}{x^2y}+\frac{2y^2z^2}{x^3}+\frac{15yz^2}{x^3}+\frac{35z}{x^3}+\frac{3y^2z^3}{x^4}+\frac{21yz^2}{x^4}+\frac{7y^2z^3}{x^5}+\frac{y^3z^4}{x^6}$	4273: $\left(y+z, x, \frac{z(y+z)}{xy}\right)$

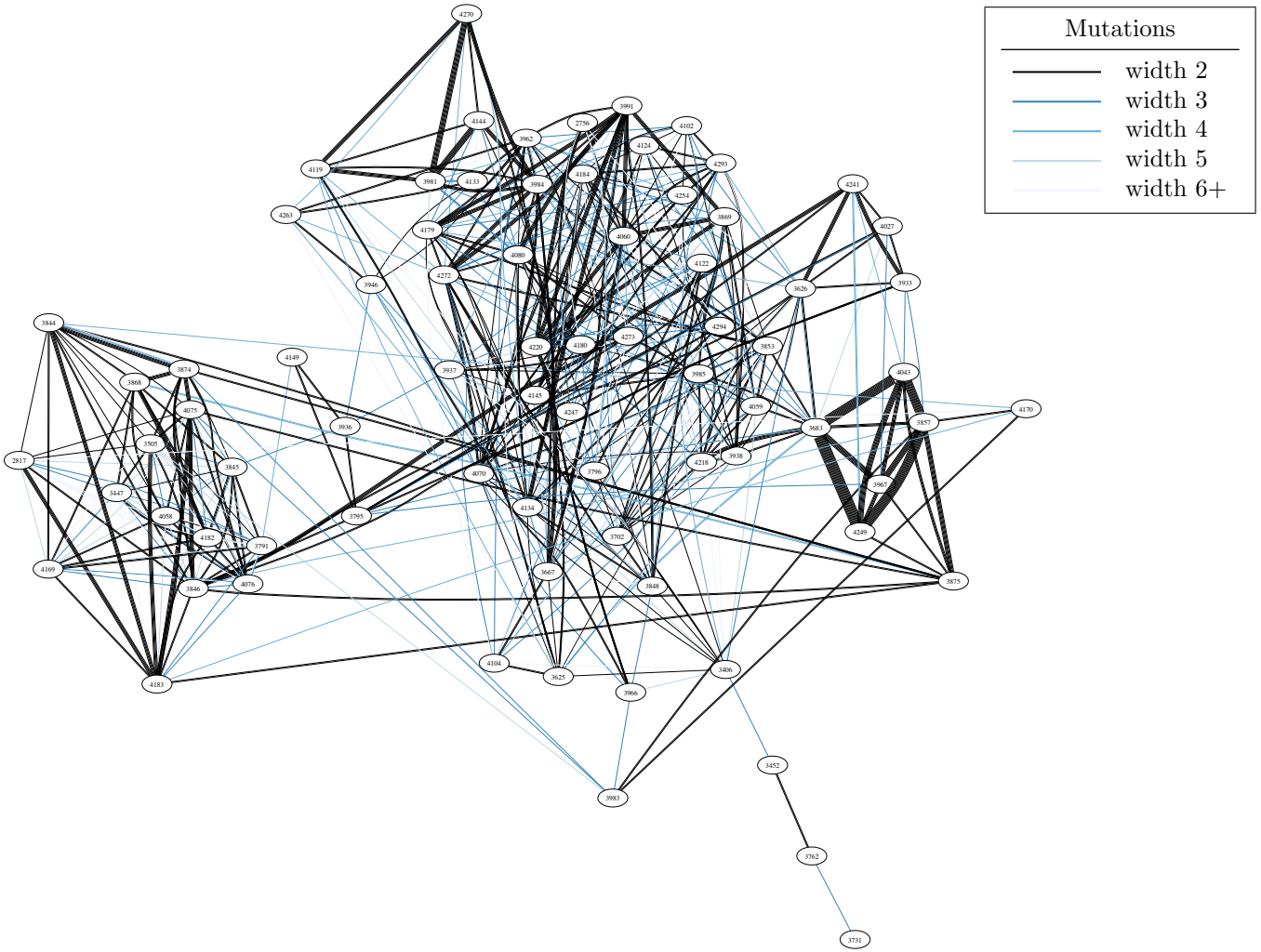

Figure 150b. All mutations between Minkowski polynomials in bucket 150

Bucket 151

Bucket 151 consists of a single Laurent polynomial:

$$f = xy^3 + 3xy^2 + 3xy + x + \frac{x}{z} + 3y + z + \frac{3}{y} + \frac{3}{xy} + \frac{3}{xy^2} + \frac{1}{x^2y^3}$$

The Newton polytope of f has reflexive ID 771.

Bucket 152

Bucket 152 consists of a single Laurent polynomial:

$$f = x + \frac{3x}{yz} + \frac{3x}{y^2z^2} + \frac{x}{y^3z^3} + 3yz + y + z + \frac{3}{yz} + \frac{3y^2z^2}{x} + \frac{3yz}{x} + \frac{y^3z^3}{x^2}$$

The Newton polytope of f has reflexive ID 770.

Bucket 153

Bucket 153 consists of a single Laurent polynomial:

$$f = xyz^2 + xyz + xz^3 + 3xz^2 + 3xz + x + y + 3z + \frac{3}{z} + \frac{1}{yz} + \frac{3}{xz} + \frac{3}{xz^2} + \frac{1}{x^2z^3}$$

The Newton polytope of f has reflexive ID 1651.

Bucket 154

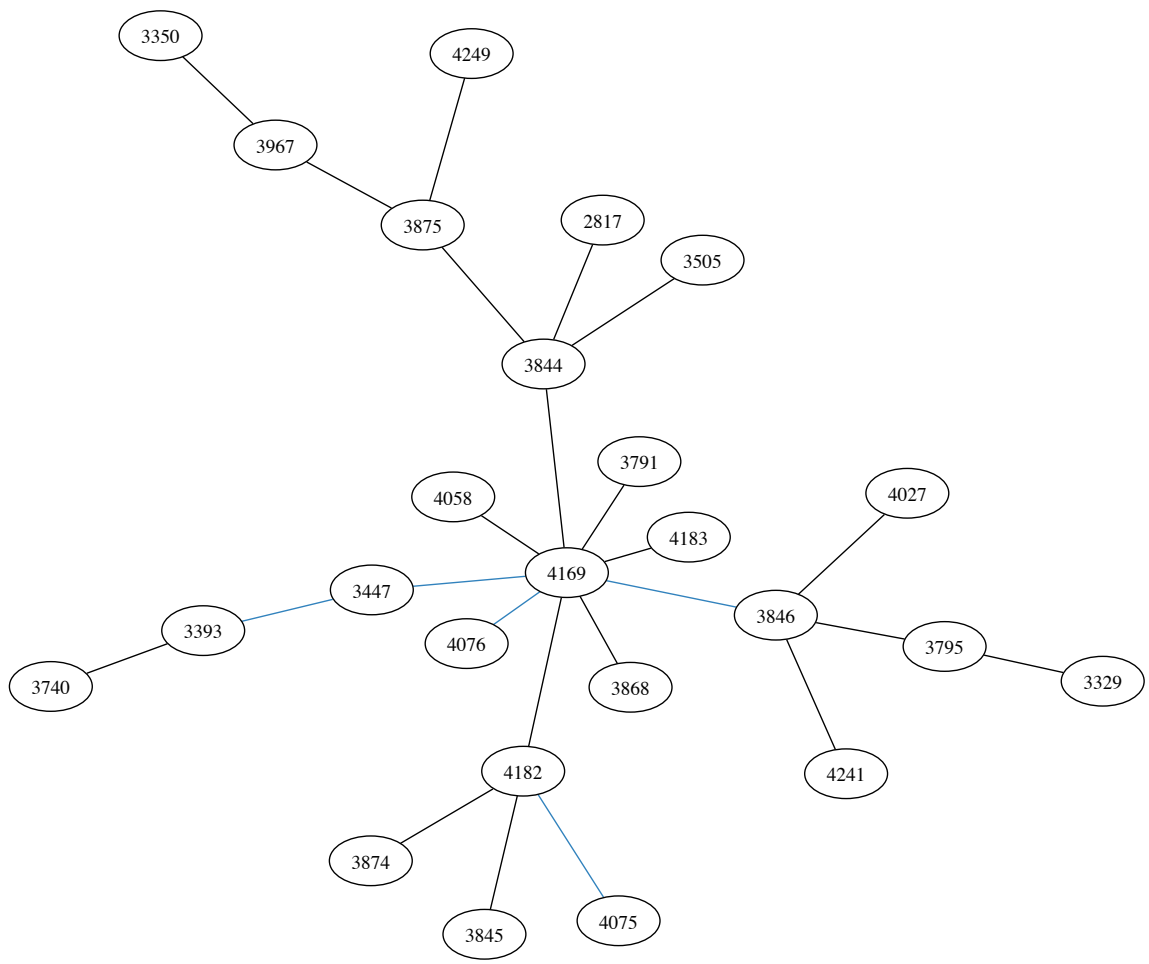

Figure 154a. Selected width-2 and width-3 mutations between Minkowski polynomials in bucket 154

Table 154. Laurent polynomials and selected mutations for bucket 154.

Node	Laurent polynomial	Mutations from Figure 154a
2817	$\frac{x^2y^3}{z}+xy^2+\frac{4xy^2}{z}+3xy+x+2y+\frac{6y}{z}+z+\frac{2z}{y}+\frac{2}{y}+\frac{z}{y^2}+\frac{1}{x}+\frac{4}{xz}+\frac{3}{xy}+\frac{1}{xy^2}+\frac{1}{x^2yz}$	3844: $\left(\frac{x^2}{y^2z},\frac{y}{x},\frac{y^2}{x+y}\right)$
3329	$xy^2+2xyz+2xy+xz^2+2xz+x+4y+4z+\frac{2z}{y}+\frac{2}{y}+\frac{2y}{xz}+\frac{6}{x}+\frac{2}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	3795: $\left(\frac{x+y(z+1)^2}{y^2z^2},\frac{yz}{x},\frac{y^2z}{x+y(z+1)^2}\right)$
3350	$xy^2+2xyz+2xy+xz^2+2xz+x+2y+\frac{2y}{z}+2z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}$	3967: $\left(\frac{z^2}{x+y+z},\frac{x}{z},\frac{y}{z}\right)$
3393	$xy^3+3xy^2+3xy+x+yz+3y+z+\frac{3}{y}+\frac{z}{xy}+\frac{3}{xy}+\frac{1}{xyz}+\frac{3}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^3z}+\frac{2}{x^2y^3}+\frac{2}{x^2y^3z}+\frac{2}{x^2y^4z}+\frac{1}{x^3y^5z}$	3447: $\left(\frac{y(xy+z)}{x^2z},\frac{x}{y},\frac{xy^2}{xy+z}\right)$ 3740: $\left(xy^3,\frac{1}{y},\frac{xy^2z}{xy^2+xy+1}\right)$
3447	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{x}{y^2}+y+\frac{3y}{z}+z+\frac{2z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3393: $\left(\frac{xy^2z+1}{xy},\frac{xy^2z+1}{xy^2},\frac{(xy^2z+1)^2}{x^3y^5z}\right)$ 4169: $\left(\frac{(xz+y)^3}{x^2y^2z^2},\frac{(xz+y)^3}{xy^3z},\frac{(xz+y)^6}{x^4y^4z^3}\right)$
3505	$x^2y^3z+x^2y^2z+2xy^2z+xy^2+2xyz+2xy+x+yz+3y+z+\frac{3}{y}+\frac{1}{x}+\frac{1}{xz}+\frac{2}{xy}+\frac{3}{xyz}+\frac{1}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}$	3844: $\left(\frac{y^2z}{x^2},\frac{x}{yz},\frac{x^2yz}{(x+y)(x+yz)}\right)$
3740	$xy^3+3xy^2+3xy+x+3y+z+\frac{3}{y}+\frac{1}{xz}+\frac{3}{xy}+\frac{3}{xyz}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{1}{xy^3z}+\frac{3}{x^2y^2z}+\frac{2}{x^2y^3}+\frac{6}{x^2y^3z}+\frac{3}{x^2y^4z}+\frac{3}{x^3y^4z}+\frac{3}{x^3y^5z}+\frac{1}{x^4y^6z}$	3393: $\left(xy^3,\frac{1}{y},\frac{z(xy^2+xy+1)}{xy}\right)$
3791	$xz^2+2xz+x+y+3z+\frac{3}{z}+\frac{z^2}{y}+\frac{4z}{y}+\frac{6}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{z}{xy}+\frac{4}{xy}+\frac{6}{xyz}+\frac{4}{xyz^2}+\frac{1}{xyz^3}$	4169: $\left(\frac{(xy^2z+(xz+y)^2)^2}{x^2y^4z},y,\frac{y}{xz}\right)$
3795	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2yz^2}{x}+\frac{4yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{5}{x}+\frac{2}{xz}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y}{x^2}$	3329: $\left(\frac{y(x^2yz+(xz+1)^2)}{xz},\frac{x^2yz+(xz+1)^2}{x},\frac{1}{xz}\right)$ 3846: $\left(y(xy+1),\frac{yz(xy+1)}{x},\frac{1}{yz}\right)$

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Table 154 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 154a
3844	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z^2}+x+\frac{2x}{y}+\frac{3x}{yz}+\frac{4x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{1}{z}+\frac{6}{y}+\frac{4}{yz}+\frac{3yz}{x}+\frac{2y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	2817: $\left(\frac{z(y+1)}{y^2},\frac{z(y+1)}{y},\frac{1}{xy^2}\right)$ 3505: $\left(z(y+1)(xy+1),xyz(y+1)(xy+1),\frac{1}{x}\right)$ 3875: $\left(\frac{(x+yz)^2}{x^2z},\frac{(x+yz)^2}{x^3},y\right)$ 4169: $\left(y,\frac{(xz+y)^2(xy^2z+(xz+y)^2)}{x^3y^2z^2},\frac{x^2y^4z}{(xz+y)^2(xy^2z+(xz+y)^2)}\right)$
3845	$xz^2+2xz+x+yz+y+3z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y}{x}+\frac{y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{1}{xy}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xyz^3}$	4182: $\left(\frac{xz^2}{(y+z)^2},z,\frac{y}{z}\right)$
3846	$xy^2+2xy+x+y^2z+2yz+3y+z+\frac{1}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{1}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^3z}$	3795: $\left(\frac{x+yz}{y^2z^2},\frac{xyz}{x+yz},\frac{x+yz}{xyz^2}\right)$ 4027: $\left(\frac{x^3z}{x^2z+y(xz+1)^2},\frac{x^2z+y(xz+1)^2}{x^2yz},\frac{xy}{x^2z+y(xz+1)^2}\right)$ 4169: $\left(\frac{xy^2}{(xz+y)^2},\frac{xz}{y},\frac{y^3}{(xz+y)^2}\right)$ 4241: $\left(\frac{(xy+1)(x^2yz+(xz+1)^2)}{x^2z},\frac{x^3yz}{(xy+1)(x^2yz+(xz+1)^2)},\frac{(xy+1)(x^2yz+(xz+1)^2)}{x^4yz^2}\right)$
3868	$x+\frac{x}{z}+\frac{x}{y}+\frac{3x}{yz}+\frac{x}{yz^2}+\frac{x}{y^2z}+\frac{x}{y^2z^2}+y+z+\frac{3}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{3yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{4yz}{x^2}+\frac{y^2z^2}{x^3}$	4169: $\left(y,\frac{(xz+y)(xy^2z+(xz+y)^2)}{x^3yz^2},\frac{x^2y^3z}{(xz+y)(xy^2z+(xz+y)^2)}\right)$
3874	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{3x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{3x}{yz}+y+\frac{y}{z}+z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{yz}{x^2}+\frac{z}{x^2}$	4182: $\left(\frac{xyz^2}{(y+z)(yz+y+z)},z,\frac{xy^2z}{(y+z)(yz+y+z)}\right)$
3875	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{x^2}{yz^2}+\frac{x^2}{y^2z}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{3x}{yz}+y+z+\frac{1}{z}+\frac{1}{y}+\frac{3yz}{x}+\frac{2y}{x}+\frac{2z}{x}+\frac{1}{x}+\frac{y^2z}{x^2}+\frac{yz^2}{x^2}+\frac{2yz}{x^2}+\frac{y^2z^2}{x^3}$	3844: $\left(\frac{(x+yz)^2}{x^2y},z,\frac{(x+yz)^2}{x^3}\right)$ 3967: $\left(\frac{x^2z}{xy+xz+yz},\frac{x^2y}{xy+xz+yz},\frac{xz^2}{xy+xz+yz}\right)$ 4249: $\left(\frac{(x^2yz+xz+1)(x^2yz+xy+1)}{x^5y^2z^2},\frac{(x^2yz+xz+1)(x^2yz+xy+1)}{x^4yz^2},\frac{(x^2yz+xz+1)(x^2yz+xy+1)}{x^4y^2z}\right)$
3967	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{5}{z}+\frac{2z}{y}+\frac{5}{y}+\frac{z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2z}{x}+\frac{5}{x}+\frac{2z}{xy}+\frac{y}{x^2}+\frac{z}{x^2}$	3350: $\left(\frac{yz+y+z}{xyz^2},\frac{yz+y+z}{xy^2z},\frac{yz+y+z}{xyz}\right)$ 3875: $\left(\frac{x^2+xy+yz}{x},\frac{yz(x^2+xy+yz)}{x^3},\frac{z(x^2+xy+yz)}{x^2}\right)$

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Table 154 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 154a
4027	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+6z+\frac{5}{y}+\frac{4yz}{x}+\frac{4y}{x}+\frac{10}{x}+\frac{2}{xz}+\frac{2}{xyz}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{6}{x^2z}+\frac{4y}{x^3z}+\frac{1}{x^3z^2}+\frac{y}{x^4z^2}$	3846: $\left(\frac{xy^2z+(yz+1)^2}{y^2z}, \frac{xy^2z+(yz+1)^2}{xy^3z}, \frac{y}{xy^2z+(yz+1)^2}\right)$
4058	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{4x}{yz}+\frac{2x}{y^2}+\frac{5x}{y^2z}+y+z+\frac{6}{z}+\frac{z}{y}+\frac{6}{y}+\frac{10}{yz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{z}{x}+\frac{6}{x}+\frac{10}{xz}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{5y}{x^2z}+\frac{y^2}{x^3z}$	4169: $\left(\frac{xy}{xz+y}, \frac{x^2z}{xz+y}, y\right)$
4075	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{2x}{yz}+\frac{2x}{y^2}+\frac{3x}{y^2z}+y+z+\frac{1}{z}+\frac{z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	4182: $\left(\frac{xy}{y+z}, \frac{xz}{y+z}, \frac{y+z}{z^2}\right)$
4076	$\frac{x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{3x}{y}+\frac{3x}{yz}+\frac{2x}{y^2}+\frac{4x}{y^2z}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{yz}{x}+\frac{3y}{x}+\frac{y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{yz}{x^2}+\frac{2y}{x^2}+\frac{y}{x^2z}$	4169: $\left(\frac{xy}{xz+y}, \frac{x^2z}{xz+y}, \frac{y^2}{xz+y}\right)$
4169	$\frac{x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{3xz}{y}+\frac{2xz^2}{y^2}+\frac{4xz}{y^2}+\frac{6xz^2}{y^3}+y+z+\frac{8z}{y}+\frac{6}{y}+\frac{15z}{y^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{12}{x}+\frac{4}{xz}+\frac{20}{xy}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{y}{x^2z^2}+\frac{15}{x^2z}+\frac{2y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{y^2}{x^4z^3}$	3447: $\left(\frac{(x+y)^3}{xyz}, \frac{(x+y)^3}{x^2y^2}, \frac{z}{x^2}\right)$ 3791: $\left(\frac{(yz+(z+1)^2)^2}{xyz^3}, y, \frac{xy^2z^2}{(yz+(z+1)^2)^2}\right)$ 3844: $\left(\frac{(x+yz)^2(x^2yz+(x+yz)^2)}{x^2y^3z^2}, x, \frac{x^4y^2z}{(x+yz)^2(x^2yz+(x+yz)^2)}\right)$ 3846: $\left(x(y+1)^2, z(y+1)^2, \frac{yz}{x}\right)$ 3868: $\left(\frac{(x+yz)(x^2yz+(x+yz)^2)}{x^2y^2z}, x, \frac{x^4y}{(x+yz)(x^2yz+(x+yz)^2)}\right)$ 4058: $\left(x+y, z, \frac{yz}{x(x+y)}\right)$ 4076: $\left(x+y, \frac{z(x+y)}{x}, \frac{yz}{x^2}\right)$ 4182: $\left(x, y+z, \frac{z(y+z)}{xy}\right)$ 4183: $\left(x, \frac{(yz+1)^2}{yz^2}, \frac{(yz+1)^2}{xy^2z^3}\right)$
4182	$x+y+\frac{3y}{z}+\frac{y}{z^2}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{2y^2}{xz^2}+\frac{y^2}{xz^3}+\frac{3y}{x}+\frac{8y}{xz}+\frac{5y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{10}{xz}+\frac{z^2}{xy}+\frac{8z}{xy}+\frac{10}{xy}+\frac{2z^2}{xy^2}+\frac{5z}{xy^2}+\frac{z^2}{xy^3}$	3845: $\left(x(z+1)^2, yz, y\right)$ 3874: $\left(\frac{(x+z)(x+yz+z)}{yz}, \frac{yz}{x}, y\right)$ 4075: $\left(x+y, \frac{x(x+y)}{y^2z}, \frac{x+y}{yz}\right)$ 4169: $\left(x, \frac{y^2}{xz+y}, \frac{xyz}{xz+y}\right)$

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Table 154 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 154a
4183	$x+yz^2+3yz+y+2z+\frac{2}{z}+\frac{1}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{y^2z^3}{x}+\frac{2y^2z^2}{x}+\frac{y^2z}{x}+\frac{4yz^2}{x}+\frac{8yz}{x}+\frac{4y}{x}+\frac{6z}{x}+\frac{12}{x}+\frac{6}{xz}+\frac{4}{xy}+\frac{8}{xyz}+\frac{4}{xyz^2}+\frac{1}{xy^2z}+\frac{2}{xy^2z^2}+\frac{1}{xy^2z^3}$	4169: $\left(x, \frac{y^3}{(xz+y)^2}, \frac{(xz+y)^2}{xy^2z}\right)$
4241	$xy^2+2xyz+2xy+xz^2+2xz+x+6y+8z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{2y}{xz}+\frac{15}{x}+\frac{2}{xz}+\frac{10z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{8}{x^2z}+\frac{16}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{1}{x^3z^2}+\frac{10}{x^3yz}+\frac{6}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3846: $\left(\frac{(xy+1)(xy^2z+(yz+1)^2)}{xyz}, \frac{x^2y^2z}{(xy+1)(xy^2z+(yz+1)^2)}, \frac{x}{(xy+1)(xy^2z+(yz+1)^2)}\right)$
4249	$x^3y^2z^2+2x^2y^2z+2x^2yz^2+2x^2yz+xy^2+8xyz+2xy+xz^2+2xz+x+8y+8z+\frac{2y}{xz}+\frac{15}{x}+\frac{2}{xz}+\frac{2z}{xy}+\frac{2}{xy}+\frac{8}{x^2z}+\frac{8}{x^2y}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}+\frac{8}{x^3yz}+\frac{1}{x^3y^2}+\frac{2}{x^4yz^2}+\frac{2}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	3875: $\left(\frac{(x^2+xz+yz)(x^2+xy+yz)}{xy^2z^2}, \frac{y^3z^2}{(x^2+xz+yz)(x^2+xy+yz)}, \frac{y^2z^3}{(x^2+xz+yz)(x^2+xy+yz)}\right)$

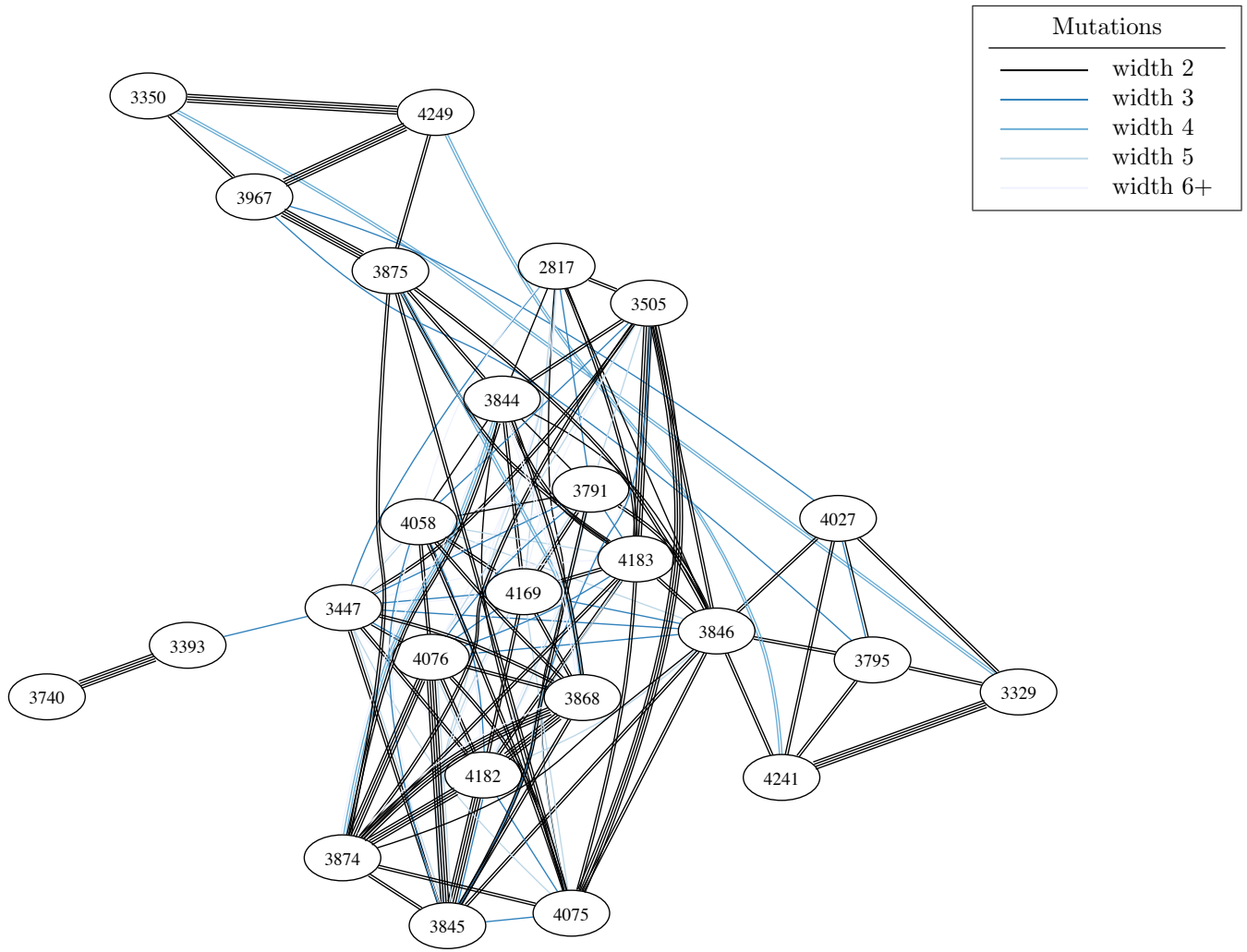


FIGURE 154B. All mutations between Minkowski polynomials in bucket 154

Bucket 155

Bucket 155 consists of a single Laurent polynomial:

$$f = x + yz^3 + 3yz^2 + 3yz + y + 3z + \frac{3}{z} + \frac{3}{yz} + \frac{3}{yz^2} + \frac{1}{y^2z^3} + \frac{1}{x}$$

The Newton polytope of f has reflexive ID 769.

Bucket 156

Bucket 156 consists of a single Laurent polynomial:

$$f = xyz^2 + xyz + 3xz + x + \frac{3x}{y} + \frac{x}{y^2z} + 3yz + y + \frac{3}{yz} + \frac{3y}{x} + \frac{1}{x} + \frac{3}{xz} + \frac{y}{x^2z}$$

The Newton polytope of f has reflexive ID 1605.

Bucket 157

(A) A spanning tree consisting of width-2 mutations

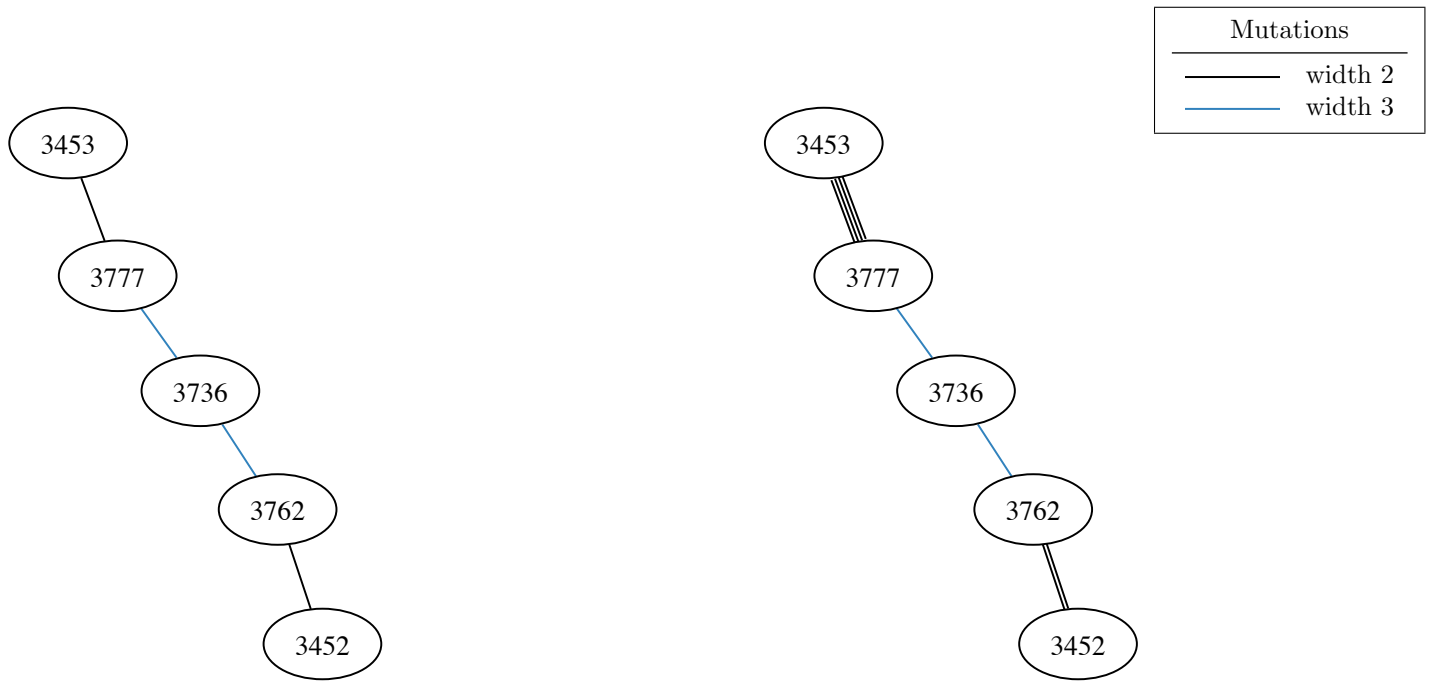
(B) All mutations are of width 2

Figure 157. Mutations between Minkowski polynomials in bucket 157

Table 157. Laurent polynomials and selected mutations for bucket 157.

Node	Laurent polynomial	Mutations from Figure 157a
2570	$xyz^2+xyz+3xz+x+\frac{3x}{y}+\frac{x}{y^2z}+3yz+y+z+\frac{1}{y}+\frac{3}{yz}+\frac{3y}{x}+\frac{1}{x}+\frac{3}{xz}+\frac{y}{x^2z}$	2791: $\left(\frac{yz^2+yz+1}{xyz^2}, \frac{yz^2+yz+1}{x}, \frac{xyz}{yz^2+yz+1}\right)$
2791	$x + yz^3 + 3yz^2 + 3yz + y + 3z + \frac{3}{z} + \frac{3}{yz} + \frac{3}{yz^2} + \frac{1}{y^2z^3} + \frac{yz^2}{x} + \frac{2yz}{x} + \frac{y}{x} + \frac{2}{x} + \frac{2}{xz} + \frac{1}{xyz^2}$	2570: $\left(\frac{xyz+x+y}{xy}, xyz^2, \frac{1}{xz}\right)$

Bucket 158



(a) A spanning tree consisting of width-2 and width-3 mutations

(b) All mutations

Figure 158. Mutations between Minkowski polynomials in bucket 158

Table 158. Laurent polynomials and selected mutations for bucket 158.

Node	Laurent polynomial	Mutations from Figure 158a
3452	$\frac{x^3y^3}{z^2}+\frac{x^2y^3}{z^2}+\frac{3x^2y^2}{z}+\frac{x^2y}{z}+\frac{2xy^2}{z}+3xy+\frac{4xy}{z}+x+y+\frac{2y}{z}+z+\frac{1}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^3}$	3762: $\left(\frac{(x^2z^2+xyz+y)^2}{x^2y^2z}, \frac{x^3y^2z^2}{(x^2z^2+xyz+y)^2}, y\right)$
3453	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{x}{yz}+y+\frac{3y}{z}+z+\frac{2}{z}+\frac{3z}{y}+\frac{2}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{y}{xz}+\frac{3z}{x}+\frac{2}{x}+\frac{z^2}{xy}+\frac{z}{xy}$	3777: $\left(\frac{x}{yz^2+yz+1}, \frac{xyz^2}{yz^2+yz+1}, \frac{xyz}{yz^2+yz+1}\right)$
3736	$x+yz^3+3yz^2+3yz+y+3z+\frac{3}{z}+\frac{3}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{3yz^2}{x}+\frac{6yz}{x}+\frac{3y}{x}+\frac{6}{x}+\frac{6}{xz}+\frac{3}{xyz^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{3}{x^2z}+\frac{y}{x^3}$	3762: $\left(\frac{x(y+z)}{y}, \frac{x^3z^3(y+z)}{y^3}, \frac{y}{x^2z^2}\right)$ 3777: $\left(x, \frac{x^2yz^3}{(x+1)^2}, \frac{x+1}{xyz^2}\right)$
3762	$\frac{x^3z^3}{y^2}+\frac{x^3z^4}{y^3}+\frac{3x^2z^2}{y}+\frac{3x^2z^3}{y^2}+3xz+x+\frac{3xz^2}{y}+\frac{4xz}{y}+\frac{3xz^2}{y^2}+y+z+\frac{6z}{y}+\frac{3y}{xz}+\frac{3}{x}+\frac{3}{xz}+\frac{3}{xy}+\frac{3y}{x^2z^2}+\frac{3}{x^2z}+\frac{y}{x^3z^3}+\frac{1}{x^3z^2}$	3452: $\left(\frac{(x^2y^2+xyz+z)^2}{x^2yz^2}, z, \frac{x^3y^2z^2}{(x^2y^2+xyz+z)^2}\right)$ 3736: $\left(\frac{x^2}{x+yz}, \frac{(x+yz)^2}{x^2y^2z^3}, \frac{(x+yz)^2}{x^3yz^2}\right)$
3777	$x+yz^3+3yz^2+3yz+y+3z+\frac{3}{z}+\frac{3}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{yz^3}{x}+\frac{3yz^2}{x}+\frac{3yz}{x}+\frac{y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z^3}$	3453: $\left(x+y+z, \frac{z^2}{xy}, \frac{y}{z}\right)$ 3736: $\left(x, \frac{x}{y^2z^3(x+1)}, \frac{yz(x+1)}{x}\right)$

Bucket 159

Bucket 159 consists of a single Laurent polynomial:

$$f = xy^2+2xy+x+y^3z+3y^2z+3yz+2y+z+\frac{2}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{3}{x}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{4}{xy^2z}+\frac{4}{xy^3z}+\frac{1}{xy^4z^2}+\frac{3}{x^2y^3z}+\frac{3}{x^2y^4z}+\frac{2}{x^2y^5z^2}+\frac{1}{x^3y^6z^2}$$

The Newton polytope of f has reflexive ID 3879.

Bucket 160

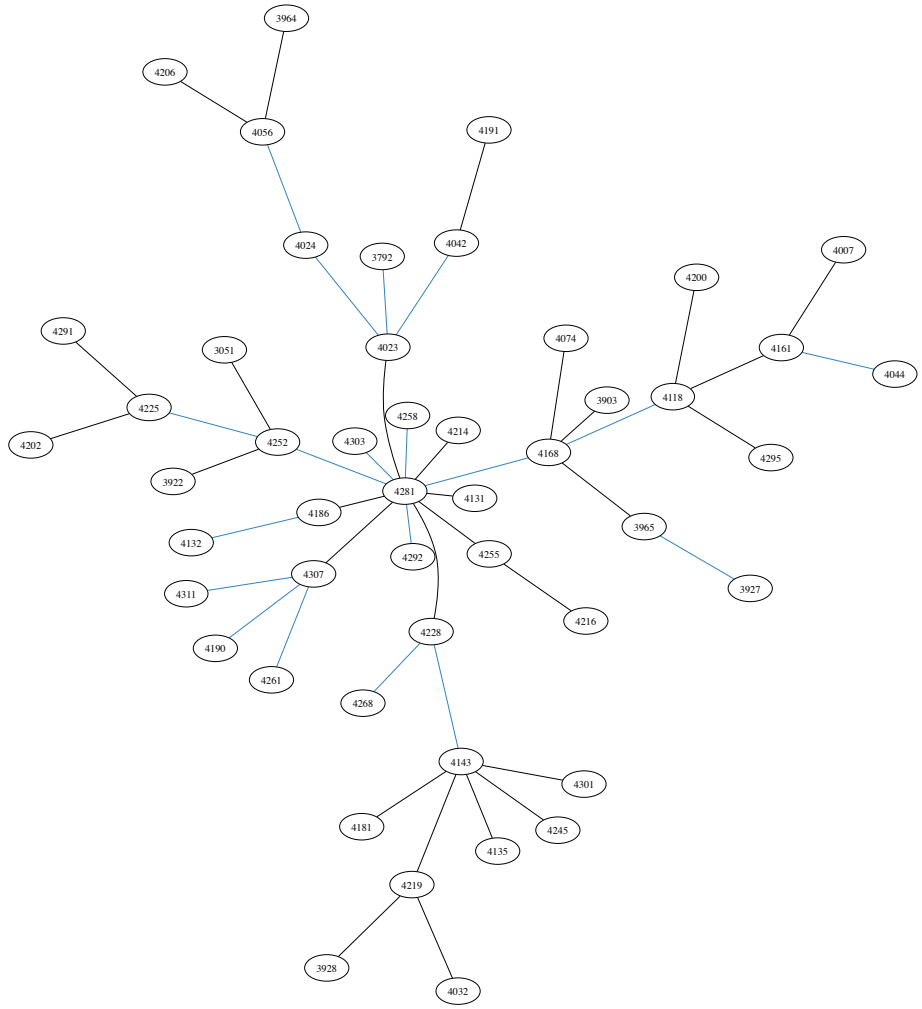


Figure 160a. Selected width-2 and width-3 mutations between Minkowski polynomials in bucket 160

Table 160. Laurent polynomials and selected mutations for bucket 160.

Node	Laurent polynomial	Mutations from Figure 160a
3051	$\frac{xy^3}{z}+xy^2+\frac{4xy^2}{z}+2xy+\frac{6xy}{z}+x+\frac{4x}{z}+\frac{x}{yz}+3y+z+\frac{3}{y}+\frac{2}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{2}{xy^2}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^3}$	$4252\colon \left(z, \frac{y}{x}, \frac{z(x+y)^3}{x^3y}\right)$
3792	$xy^2+\frac{xy^2}{z}+2xy+\frac{3xy}{z}+x+\frac{3x}{z}+\frac{x}{yz}+yz+3y+z+\frac{3}{y}+\frac{3z}{x}+\frac{2}{x}+\frac{3z}{xy}+\frac{4}{xy}+\frac{2}{xy^2}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{z}{x^3y^2}+\frac{z}{x^3y^3}$	$4023\colon \left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{xz}{x+y}\right)$
3903	$xy^2+2xy+x+y^3z+3y^2z+3yz+3y+z+\frac{3}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{y^2z}{x}+\frac{3yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^3z}+\frac{1}{xy^4z^2}$	$4168\colon \left(\frac{y^2}{x+y}, \frac{x}{y}, \frac{y^3z}{x^3}\right)$
3922	$xz^2+2xz+x+\frac{xz^3}{y}+\frac{4xz^2}{y}+\frac{6xz}{y}+\frac{4x}{y}+\frac{x}{yz}+y+3z+\frac{3}{z}+\frac{z^2}{y}+\frac{4z}{y}+\frac{6}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{y}{x^2z^2}$	$4252\colon \left(\frac{y^2z}{x^2}, \frac{(x+y)^3(x+yz)}{x^3y^2}, \frac{x}{y}\right)$
3927	$xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+3y+z+\frac{3}{y}+\frac{4}{yz}+\frac{4}{y^2z}+\frac{2}{y^3z^2}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{xy^3z}+\frac{1}{xy^4z^2}$	$3965\colon \left(\frac{1}{x}, xy, z(y+1)\right)$
3928	$xz^2+2xz+x+\frac{2xz^2}{y}+\frac{2xz}{y}+\frac{xz^2}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+3z+\frac{3}{z}+\frac{4z}{y}+\frac{3}{y}+\frac{z}{y^2}+\frac{2y}{xz}+\frac{2y}{xz^2}+\frac{3}{x}+\frac{4}{xz}+\frac{2}{xy}+\frac{y}{x^2z^2}+\frac{1}{x^2z}$	$4219\colon \left(\frac{xy^2}{(y+z)^2}, \frac{(y+z)^2}{yz^2}, \frac{(y+z)^2}{y^2z}\right)$
3964	$xyz^3+3xyz^2+3xyz+xy+xz^2+2xz+x+yz^2+2yz+y+3z+\frac{3}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{3}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	$4056\colon \left(\frac{x^2}{x+y+z}, \frac{x+y+z}{yz}, \frac{y}{x}\right)$
3965	$x^3y^4z+x^3y^3z+3x^2y^3z+3x^2y^2z+3xy^2z+xy^2+3xyz+3xy+x+yz+2y+z+\frac{2}{y}+\frac{1}{x}+\frac{3}{xy}+\frac{2}{xyz}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{x^2y^2z}+\frac{2}{x^2y^3z}+\frac{1}{x^3y^4z^2}$	$3927\colon \left(\frac{1}{x}, xy, \frac{z}{xy+1}\right)$ $4168\colon \left(\frac{x^4}{(x+y)(x^2+xyz+y^2z)}, \frac{(x+y)(x^2+xyz+y^2z)}{x^3y}, \frac{y^4z}{(x+y)(x^2+xyz+y^2z)}\right)$
4007	$xy^2+2xyz+2xy+xz^2+2xz+x+\frac{2y^2}{z}+6y+\frac{2y}{z}+4z+\frac{2z}{y}+\frac{2}{y}+\frac{y^2}{xz^2}+\frac{6y}{xz}+\frac{6}{x}+\frac{4}{xz}+\frac{4}{xy}+\frac{1}{xy^2}+\frac{2y}{x^2z^2}+\frac{4}{x^2z}+\frac{2}{x^2yz}+\frac{1}{x^3z^2}$	$4161\colon \left(\frac{xyz^2+(yz+1)^2}{y}, \frac{1}{xz}, \frac{y^2z}{xyz^2+(yz+1)^2}\right)$
4023	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{2x}{y^2}+y+\frac{3y}{z}+z+\frac{3z}{y}+\frac{6}{y}+\frac{3z}{y^2}+\frac{z}{y^3}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{6z}{xy}+\frac{3z}{xy^2}+\frac{2y}{x^2}+\frac{3z}{x^2}+\frac{3z}{x^2y}+\frac{z}{x^3}$	$3792\colon (x(y+1), xy(y+1), z(y+1))$ $4024\colon \left(\frac{x+y^2z}{yz}, x, \frac{x^2(x+y^2z)}{y^3z^2}\right)$ $4042\colon \left(\frac{x+y^2z}{yz}, \frac{x(x+y^2z)}{y^2z}, \frac{x^2(x+y^2z)^2}{y^5z^3}\right)$ $4281\colon \left(\frac{yz}{x}, y, \frac{y(x+z)^2}{x^2z}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4024	$\frac{x^3}{y^3z^2}+\frac{x^2}{yz}+\frac{3x^2}{y^2z}+\frac{3x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{4x}{yz}+\frac{6x}{y^2z}+\frac{3x}{y^3z^2}+y+z+\frac{3}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{3yz}{x}+\frac{3y}{x}+\frac{6}{x}+\frac{3}{xyz}+\frac{3y^2z}{x^2}+\frac{3y}{x^2}+\frac{y^3z}{x^3}$	4023: $\left(y, \frac{x^2y}{xy+z}, \frac{(xy+z)^2}{x^3z}\right)$ 4056: $\left(x, y, \frac{x(x+1)}{yz}\right)$
4032	$xy^2+2xyz+2xy+xz^2+2xz+x+2y+\frac{2y}{z}+2z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{1}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{4}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{2}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	4219: $\left(\frac{x^2}{x+y+z}, \frac{x+y+z}{xz}, \frac{y}{x}\right)$
4042	$\frac{x^4}{y^5z^3}+\frac{2x^3}{y^3z^2}+\frac{3x^3}{y^4z^2}+\frac{x^2}{yz}+\frac{4x^2}{y^2z}+\frac{3x^2}{y^3z}+\frac{3x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{4x}{yz}+\frac{x}{y^2}+\frac{6x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{3y^2z}{x^2}+\frac{y}{x^2}+\frac{y^3z}{x^3}$	4023: $\left(\frac{xy^2}{xy+z}, \frac{x^2y}{xy+z}, \frac{y(xy+z)}{x^2z}\right)$ 4191: $\left(\frac{xyz^2}{yz^2+yz+1}, \frac{xyz}{yz^2+yz+1}, yz^3\right)$
4044	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+4z+\frac{2}{z}+\frac{3}{y}+\frac{2}{yz}+\frac{2yz}{x}+\frac{4y}{x}+\frac{2y}{xz}+\frac{3}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{y}{x^2}+\frac{2y}{x^2z}+\frac{y}{x^2z^2}$	4161: $\left(y, \frac{xy^2z^2}{(yz+1)^2}, z\right)$
4056	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{x}{yz}+y+\frac{3y}{z}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{z^2}{x^2y}$	3964: $\left(\frac{xyz^2+xyz+1}{yz}, \frac{xyz^2+xyz+1}{y}, \frac{xyz^2+xyz+1}{xy^2z^2}\right)$ 4024: $\left(x, y, \frac{x(x+1)}{yz}\right)$ 4206: $\left(\frac{(yz^2+yz+1)^3}{xy^2z^3}, \frac{(yz^2+yz+1)^3}{xy^3z^4}, \frac{(yz^2+yz+1)^3}{xy^2z^2}\right)$
4074	$xz^2+2xz+x+\frac{xz^2}{y}+\frac{3xz}{y}+\frac{3x}{y}+\frac{x}{yz}+yz+y+3z+\frac{3}{z}+\frac{z}{y}+\frac{3}{y}+\frac{3}{yz}+\frac{1}{yz^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{2}{x}+\frac{4}{xz}+\frac{2}{xz^2}+\frac{y}{x^2z}+\frac{y}{x^2z^2}$	4168: $\left(\frac{(x^2+xyz+y^2z)^2}{x^2y^3z}, \frac{(x^2+xyz+y^2z)^2}{xy^4z^2}, \frac{y}{x}\right)$
4118	$xy^2+2xy+x+y^2z+2yz+3y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{6}{xy}+\frac{3}{xyz}+\frac{3}{xy^2}+\frac{6}{xy^2z}+\frac{1}{xy^2z^2}+\frac{3}{xy^3z}+\frac{2}{xy^3z^2}+\frac{1}{xy^4z^2}$	4161: $\left(\frac{x^2yz^2}{xyz^2+yz+1}, \frac{xyz^2+yz+1}{xyz}, \frac{xy^2z^2}{xyz^2+yz+1}\right)$ 4168: $\left(\frac{x^2}{x+y}, \frac{y}{x}, \frac{z(x+y)}{x}\right)$ 4200: $\left(\frac{xz+(y+z)^2}{y^2z}, \frac{xyz}{xz+(y+z)^2}, \frac{xz+(y+z)^2}{xz^2}\right)$ 4295: $\left(\frac{x^5y^2z^2}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}, \frac{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}{x^4yz^2}, \frac{x^5yz^3}{(x^2yz+xz+1)(x^2yz+(xz+1)^2)}\right)$
4131	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{4x}{yz}+\frac{2x}{y^2}+y+\frac{3y}{z}+z+\frac{6}{z}+\frac{2z}{y}+\frac{6}{y}+\frac{z}{y^2}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{4y}{xz}+\frac{2z}{x}+\frac{6}{x}+\frac{2z}{xy}+\frac{y^2}{x^2z}+\frac{2y}{x^2}+\frac{z}{x^2}$	4281: $\left(\frac{yz}{x}, y, \frac{(x+z)^2(x+yz+z)}{x^2z^2}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4132	$\frac{x^2}{yz}+\frac{x^2}{yz^2}+x+\frac{2x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{x}{yz^2}+y+z+\frac{3}{z}+\frac{z}{y}+\frac{5}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{2z}{xy}+\frac{3}{xy}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{3z}{x^2}+\frac{z}{x^2y}$	4186: $\left(x, \frac{x+yz}{y}, \frac{x^2}{yz}\right)$
4135	$x+\frac{2xz}{y}+\frac{2x}{y}+\frac{xz^2}{y^2}+\frac{4xz}{y^2}+\frac{x}{y^2}+\frac{2xz^2}{y^3}+\frac{2xz}{y^3}+\frac{xz^2}{y^4}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{4z}{y}+\frac{5}{y}+\frac{3z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{2y}{x}+\frac{4y}{xz}+\frac{3}{x}+\frac{y^3}{x^2z^2}+\frac{y^2}{x^2z}$	4143: $\left(\frac{xy(yz+1)}{z}, y(yz+1), \frac{yz+1}{x}\right)$
4143	$xy^2+2xy+\frac{xy}{z}+x+\frac{2x}{z}+\frac{x}{yz}+y^2z+2yz+3y+z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz}{x}+\frac{2z}{x}+\frac{2}{x}+\frac{z}{xy}+\frac{4}{xy}+\frac{1}{xyz}+\frac{2}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^3z}$	4135: $\left(\frac{xz+y^2}{xz^2}, \frac{xyz}{xz+y^2}, \frac{y(xz+y^2)}{x^2z^2}\right)$ 4181: $\left(\frac{x^2z}{xy+xz+yz}, \frac{xy+xz+yz}{xyz}, \frac{x^2y}{xy+xz+yz}\right)$ 4219: $\left(\frac{xy^2}{(y+z)(x+z)}, \frac{(y+z)(x+z)}{xyz}, \frac{x^2y}{(y+z)(x+z)}\right)$ 4228: $\left(\frac{z^2}{x+z}, \frac{x}{z}, \frac{yz^2}{x(x+z)}\right)$ 4245: $\left(\frac{(xz+1)(xyz+x+y)}{xy}, \frac{x^2yz}{(xz+1)(xyz+x+y)}, \frac{(xz+1)(xyz+x+y)}{xy^2z}\right)$ 4301: $\left(\frac{x^4y^2z}{(xz+1)(xy+1)(xy+xz+1)}, \frac{(xz+1)(xy+1)(xy+xz+1)}{x^3yz}, \frac{x^4yz^2}{(xz+1)(xy+1)(xy+xz+1)}\right)$
4161	$xz^2+2xz+x+yz^2+2yz+y+4z+\frac{2}{z}+\frac{3}{y}+\frac{4}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{2y}{x}+\frac{7}{x}+\frac{6}{xz}+\frac{8}{xyz}+\frac{6}{xyz^2}+\frac{3}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{y}{x^2}+\frac{4}{x^2z}+\frac{6}{x^2yz^2}+\frac{4}{x^2y^2z^3}+\frac{1}{x^2y^3z^4}$	4007: $\left(\frac{xz+y(xz+1)^2}{x^2y^2z}, \frac{xz+y(xz+1)^2}{xy}, \frac{x^2yz}{xz+y(xz+1)^2}\right)$ 4044: $\left(\frac{y(xz+1)^2}{x^2z^2}, x, z\right)$ 4118: $\left(\frac{xy^2z+yz+1}{y^2z}, \frac{xy^2z+yz+1}{xy^2}, \frac{xy^3z}{xy^2z+yz+1}\right)$
4168	$\frac{x^3}{y^4z^2}+\frac{2x^2}{y^2z}+\frac{3x^2}{y^3z}+\frac{x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{2x}{yz}+\frac{3x}{y^2}+\frac{6x}{y^2z}+y+z+\frac{z}{y}+\frac{9}{y}+\frac{3}{yz}+\frac{3yz}{x}+\frac{3y}{x}+\frac{4z}{x}+\frac{9}{x}+\frac{3y^2z}{x^2}+\frac{6yz}{x^2}+\frac{3y}{x^2}+\frac{y^3z}{x^3}+\frac{4y^2z}{x^3}+\frac{y^3z}{x^4}$	3903: $(xy(y+1), x(y+1), y^3z)$ 3965: $\left(y(xy+1)(x^2y^2z+xyz+1), \frac{(xy+1)(x^2y^2z+xyz+1)}{x}, x^3y^3z\right)$ 4074: $\left(\frac{(xz+x+y)^2}{x^2yz^2}, \frac{(xz+x+y)^2}{x^2yz}, \frac{x}{yz}\right)$ 4118: $\left(x(y+1), xy(y+1), \frac{z}{y+1}\right)$ 4281: $\left(x, z, \frac{x^2y}{(x+z)^2}\right)$
4181	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{5}{z}+\frac{2z}{y}+\frac{5}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4y}{x}+\frac{3y}{xz}+\frac{4z}{x}+\frac{7}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	4143: $\left(\frac{xy+yz+1}{y}, \frac{xy+yz+1}{xy^2}, \frac{xy+yz+1}{y^2z}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4186	$\frac{x^2}{yz}+\frac{2x^2}{y^2z}+\frac{x^2}{y^3z}+x+\frac{x}{z}+\frac{3x}{y}+\frac{4x}{yz}+\frac{2x}{y^2}+\frac{3x}{y^2z}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{1}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{2y}{x^2}+\frac{y^2z}{x^3}$	4132: $\left(x, \frac{x(x+z)}{yz}, \frac{xy}{x+z}\right)$ 4281: $\left(\frac{yz}{x}, y, \frac{(x+yz+z)^2}{x^2yz}\right)$
4190	$x+yz^4+4yz^3+6yz^2+4yz+y+3z+\frac{3}{z}+\frac{2}{yz^2}+\frac{yz^5}{x}+\frac{6yz^4}{x}+\frac{15yz^3}{x}+\frac{20yz^2}{x}+\frac{15yz}{x}+\frac{6y}{x}+\frac{y}{xz}+\frac{3z^2}{x}+\frac{12z}{x}+\frac{18}{x}+\frac{12}{xz}+\frac{3}{xz^2}+\frac{3}{xyz}+\frac{6}{xyz^2}+\frac{3}{xyz^3}+\frac{1}{xy^2z^4}$	4307: $\left(x, \frac{z^4}{(y+z)^3}, \frac{y}{z}\right)$
4191	$x+yz^3+3yz^2+3yz+y+3z+\frac{3}{z}+\frac{4}{yz}+\frac{4}{yz^2}+\frac{2}{y^2z^3}+\frac{z^2}{x}+\frac{4z}{x}+\frac{6}{x}+\frac{4}{xz}+\frac{1}{xz^2}+\frac{4}{xy}+\frac{12}{xyz}+\frac{12}{xyz^2}+\frac{4}{xyz^3}+\frac{6}{xy^2z^2}+\frac{12}{xy^2z^3}+\frac{6}{xy^2z^4}+\frac{4}{xy^3z^4}+\frac{4}{xy^3z^5}+\frac{1}{xy^4z^6}$	4042: $\left(\frac{x^2+xyz+y^2z}{yz}, \frac{y^3z}{x^3}, \frac{x}{y}\right)$
4200	$x+\frac{2x}{y}+\frac{x}{y^2}+y+\frac{2y}{z}+z+\frac{2}{z}+\frac{4z}{y}+\frac{5}{y}+\frac{3z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{6y}{x}+\frac{6y}{xz}+\frac{6z}{x}+\frac{12}{x}+\frac{2z^2}{xy}+\frac{10z}{xy}+\frac{3z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	4118: $\left(\frac{xy^2z+(yz+1)^2}{z}, \frac{xy^2z+(yz+1)^2}{xyz}, \frac{xy^2z+(yz+1)^2}{xy^2z^2}\right)$
4202	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{4x}{yz}+\frac{4x}{yz^2}+\frac{4x}{y^2z^2}+y+z+\frac{6}{z}+\frac{5}{y}+\frac{12}{yz}+\frac{6}{y^2z}+\frac{2yz}{x}+\frac{4y}{x}+\frac{4z}{x}+\frac{12}{x}+\frac{2z}{xy}+\frac{12}{xy}+\frac{4}{xy^2}+\frac{y^2z}{x^2}+\frac{4yz}{x^2}+\frac{6z}{x^2}+\frac{4z}{x^2y}+\frac{z}{x^2y^2}$	4225: $\left(\frac{(xz+x+yz)^3}{x^3yz^2}, z, \frac{(xz+x+yz)^3}{x^2y^2z^3}\right)$
4206	$x+yz^3+3yz^2+3yz+y+3z+\frac{3}{z}+\frac{3}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{yz^4}{x}+\frac{4yz^3}{x}+\frac{6yz^2}{x}+\frac{4yz}{x}+\frac{y}{x}+\frac{4z^2}{x}+\frac{12z}{x}+\frac{12}{x}+\frac{4}{xz}+\frac{6}{xy}+\frac{12}{xyz}+\frac{6}{xyz^2}+\frac{4}{xy^2z^2}+\frac{4}{xy^2z^3}+\frac{1}{xy^3z^4}$	4056: $\left(\frac{(x+y+z)^3}{x^2yz}, \frac{x^2}{yz}, \frac{z}{x}\right)$
4214	$\frac{x^2}{yz}+\frac{3x^2}{y^2z}+\frac{3x^2}{y^3z}+\frac{x^2}{y^4z}+x+\frac{x}{z}+\frac{3x}{y}+\frac{6x}{yz}+\frac{2x}{y^2}+\frac{9x}{y^2z}+\frac{4x}{y^3z}+y+z+\frac{3}{z}+\frac{6}{y}+\frac{9}{yz}+\frac{6}{y^2z}+\frac{2yz}{x}+\frac{3y}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{4}{xyz}+\frac{y^2z}{x^2}+\frac{2y}{x^2}+\frac{1}{x^2z}$	4281: $\left(\frac{yz}{x}, y, \frac{z^2}{x+z}\right)$
4216	$\frac{x^2}{yz^2}+\frac{x^2}{y^2z^3}+x+\frac{2x}{z}+\frac{3x}{yz}+\frac{4x}{yz^2}+\frac{2x}{y^2z^2}+y+z+\frac{6}{z}+\frac{2}{y}+\frac{8}{yz}+\frac{1}{y^2z}+\frac{3yz}{x}+\frac{4y}{x}+\frac{4z}{x}+\frac{12}{x}+\frac{4}{xy}+\frac{y^2z}{x^2}+\frac{2yz^2}{x^2}+\frac{8yz}{x^2}+\frac{6z}{x^2}+\frac{2y^2z^2}{x^3}+\frac{4yz^2}{x^3}+\frac{y^2z^3}{x^4}$	4255: $\left(x, \frac{z^2}{y+z}, \frac{x(y+z)}{yz}\right)$
4219	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{5}{z}+\frac{4z}{y}+\frac{7}{y}+\frac{3z}{y^2}+\frac{2y}{x}+\frac{2y}{xz}+\frac{4z}{x}+\frac{7}{x}+\frac{2z^2}{xy}+\frac{8z}{xy}+\frac{3z^2}{xy^2}+\frac{y}{x^2}+\frac{3z}{x^2}+\frac{3z^2}{x^2y}+\frac{z^3}{x^2y^2}$	3928: $\left(\frac{x(y+z)^2}{y^2}, \frac{(y+z)^2}{yz^2}, \frac{(y+z)^2}{y^2z}\right)$ 4032: $\left(\frac{y(xyz+xz+1)}{z}, \frac{xyz+xz+1}{z}, \frac{xyz+xz+1}{xz^2}\right)$ 4143: $\left(\frac{(yz+1)(xy+1)}{xy^2}, \frac{(yz+1)(xy+1)}{y^2z}, \frac{(yz+1)(xy+1)}{xy^3z}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4225	$x+\frac{x}{z}+\frac{2x}{y}+\frac{4x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2}+\frac{3x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^2z^3}+y+z+\frac{5}{z}+\frac{z}{y}+\frac{6}{y}+\frac{9}{yz}+\frac{4}{yz^2}+\frac{2yz}{x}+\frac{4y}{x}+\frac{3z}{x}+\frac{9}{x}+\frac{6}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{4y}{x^2}+\frac{y^2z}{x^3}$	4202: $\left(\frac{(x+yz+z)^3}{x^2yz^2}, \frac{(x+yz+z)^3}{xy^2z^3}, y\right)$ 4252: $\left(y, \frac{xyz}{x+yz}, \frac{y(x+yz)}{x^2}\right)$ 4291: $\left(\frac{(yz+1)(yz+y+1)^3}{xy^3z^2}, \frac{(yz+1)(yz+y+1)^3}{xy^3z}, y\right)$
4228	$\frac{x^2}{yz}+\frac{2x^2}{yz^2}+\frac{x^2}{yz^3}+x+\frac{3x}{z}+\frac{2x}{z^2}+\frac{2x}{y}+\frac{6x}{yz}+\frac{4x}{yz^2}+y+\frac{y}{z}+z+\frac{6}{z}+\frac{z}{y}+\frac{6}{y}+\frac{6}{yz}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{6}{x}+\frac{2z}{xy}+\frac{4}{xy}+\frac{yz}{x^2}+\frac{2z}{x^2}+\frac{z}{x^2y}$	4143: $(xy(y+1), yz(y+1), x(y+1))$ 4268: $\left(\frac{y^2}{xz+y}, \frac{xy}{xz+y}, \frac{xyz}{xz+y}\right)$ 4281: $\left(\frac{(x+z)(x+yz+z)^2}{x^2yz^2}, \frac{yz}{x}, \frac{(x+z)(x+yz+z)^2}{xyz^3}\right)$
4245	$xz^2+2xz+x+\frac{2xz}{y}+\frac{2x}{y}+\frac{x}{y^2}+yz^2+2yz+y+6z+\frac{7}{y}+\frac{2}{yz}+\frac{2}{y^2z}+\frac{4yz}{x}+\frac{4y}{x}+\frac{12}{x}+\frac{4}{xz}+\frac{8}{xyz}+\frac{1}{xy^2z^2}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{10}{x^2z}+\frac{3}{x^2yz^2}+\frac{4y}{x^3z}+\frac{3}{x^3z^2}+\frac{y}{x^4z^2}$	4143: $\left(\frac{(xy+1)(xy+yz+1)}{x}, \frac{(xy+1)(xy+yz+1)}{xyz}, \frac{x^2y}{(xy+1)(xy+yz+1)}\right)$
4252	$\frac{x^3}{y^4z^2}+\frac{2x^2}{y^2z}+\frac{3x^2}{y^3z}+\frac{3x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{4x}{yz}+\frac{3x}{y^2}+\frac{9x}{y^2z}+\frac{3x}{y^2z^2}+y+z+\frac{2}{z}+\frac{z}{y}+\frac{9}{y}+\frac{9}{yz}+\frac{1}{yz^2}+\frac{2yz}{x}+\frac{3y}{x}+\frac{3z}{x}+\frac{9}{x}+\frac{3}{xz}+\frac{y^2z}{x^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{y^2z}{x^3}$	3051: $\left(\frac{x(y+1)^3}{yz}, \frac{x(y+1)^3}{z}, x\right)$ 3922: $\left(\frac{(z+1)^3(xz+1)}{yz}, \frac{(z+1)^3(xz+1)}{yz^2}, xz^2\right)$ 4225: $\left(\frac{x+yz}{z}, x, \frac{y(x+yz)}{x^2}\right)$ 4281: $\left(x, z, \frac{xy}{x+z}\right)$
4255	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{3y}{z}+\frac{2y}{z^2}+z+\frac{6}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{2y^2}{xz^2}+\frac{y^2}{xz^3}+\frac{3y}{x}+\frac{8y}{xz}+\frac{5y}{xz^2}+\frac{3z}{x}+\frac{12}{x}+\frac{10}{xz}+\frac{z^2}{xy}+\frac{8z}{xy}+\frac{10}{xy}+\frac{2z^2}{xy^2}+\frac{5z}{xy^2}+\frac{z^2}{xy^3}$	4216: $\left(x, \frac{x(x+yz)}{yz^2}, \frac{x+yz}{z}\right)$ 4281: $\left(\frac{(x+z)^2(x+yz+z)^2}{x^2yz^3}, \frac{yz}{x}, y\right)$
4258	$x+\frac{x}{yz}+yz^2+2yz+y+3z+\frac{3}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{yz^2}+\frac{2z^2}{x}+\frac{8z}{x}+\frac{12}{x}+\frac{8}{xz}+\frac{2}{xz^2}+\frac{3z}{xy}+\frac{12}{xy}+\frac{18}{xyz}+\frac{12}{xyz^2}+\frac{3}{xyz^3}+\frac{z^2}{x^2y}+\frac{6z}{x^2y}+\frac{15}{x^2y}+\frac{20}{x^2yz}+\frac{15}{x^2yz^2}+\frac{6}{x^2yz^3}+\frac{1}{x^2yz^4}$	4281: $\left(\frac{y(x+z)}{x}, \frac{z^2}{x+z}, \frac{x}{z}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4261	$x+yz^3+3yz^2+3yz+y+3z+\frac{3}{z}+\frac{2}{yz}+\frac{2}{yz^2}+\frac{yz^4}{x}+\frac{5yz^3}{x}+\frac{10yz^2}{x}+\frac{10yz}{x}+\frac{5y}{x}+\frac{y}{xz}+\frac{3z^2}{x}+\frac{12z}{x}+\frac{18}{x}+\frac{12}{xz}+\frac{3}{xz^2}+\frac{3}{xy}+\frac{9}{xyz}+\frac{9}{xyz^2}+\frac{3}{xyz^3}+\frac{1}{xy^2z^2}+\frac{2}{xy^2z^3}+\frac{1}{xy^2z^4}$	4307: $\left(x, \frac{y^3}{(y+z)^2}, \frac{z}{y}\right)$
4268	$\frac{x^2z}{y^2}+\frac{2x^2z^2}{y^3}+\frac{x^2z^3}{y^4}+x+\frac{3xz}{y}+\frac{2x}{y}+\frac{2xz^2}{y^2}+\frac{8xz}{y^2}+\frac{6xz^2}{y^3}+y+z+\frac{1}{z}+\frac{8z}{y}+\frac{12}{y}+\frac{15z}{y^2}+\frac{2y}{x}+\frac{3y}{xz}+\frac{12}{x}+\frac{8}{xz}+\frac{20}{xy}+\frac{y^2}{x^2z}+\frac{8y}{x^2z}+\frac{2y}{x^2z^2}+\frac{15}{x^2z}+\frac{2y^2}{x^3z^2}+\frac{6y}{x^3z^2}+\frac{y^2}{x^4z^3}$	4228: $\left(\frac{y(x+z)}{x}, x+z, \frac{z}{y}\right)$
4281	$\frac{x^3}{y^2z^4}+\frac{2x^2}{yz^2}+\frac{3x^2}{yz^3}+\frac{5x^2}{y^2z^3}+x+\frac{3x}{z}+\frac{3x}{z^2}+\frac{6x}{yz}+\frac{12x}{yz^2}+\frac{10x}{y^2z^2}+y+\frac{y}{z}+z+\frac{9}{z}+\frac{6}{y}+\frac{18}{yz}+\frac{10}{y^2z}+\frac{yz}{x}+\frac{2y}{x}+\frac{3z}{x}+\frac{9}{x}+\frac{2z}{xy}+\frac{12}{xy}+\frac{5}{xy^2}+\frac{yz}{x^2}+\frac{3z}{x^2}+\frac{3z}{x^2y}+\frac{z}{x^2y^2}$	4023: $\left(\frac{(x+y)^2}{xz}, y, \frac{(x+y)^2}{yz}\right)$ 4131: $\left(\frac{(x+y)^2(xy+x+y)}{x^2yz}, y, \frac{(x+y)^2(xy+x+y)}{xy^2z}\right)$ 4168: $\left(x, \frac{z(x+y)^2}{x^2}, y\right)$ 4186: $\left(\frac{(xy+x+y)^2}{xy^2z}, y, \frac{(xy+x+y)^2}{y^3z}\right)$ 4214: $\left(\frac{yz(x+y)}{x^2}, y, \frac{z(x+y)}{x}\right)$ 4228: $\left(\frac{(x+z)(x+yz+z)^2}{x^2yz^2}, \frac{yz}{x}, \frac{(x+z)(x+yz+z)^2}{xyz^3}\right)$ 4252: $\left(x, \frac{z(x+y)}{x}, y\right)$ 4255: $\left(\frac{(y+z)^2(yz+y+z)^2}{xy^3z^2}, z, \frac{(y+z)^2(yz+y+z)^2}{xy^2z^3}\right)$ 4258: $\left(yz(z+1), \frac{xz}{z+1}, y(z+1)\right)$ 4292: $\left(\frac{x}{z+1}, y(z+1), \frac{xz}{z+1}\right)$ 4303: $\left(y, \frac{xy}{y+z}, z\right)$ 4307: $\left(\frac{xy}{y+z}, y, \frac{xz}{y+z}\right)$
4291	$x+yz^2+2yz+y+4z+\frac{2}{z}+\frac{5}{y}+\frac{4}{yz}+\frac{2}{y^2z}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{5z^2}{x}+\frac{16z}{x}+\frac{18}{x}+\frac{8}{xz}+\frac{1}{xz^2}+\frac{10z}{xy}+\frac{24}{xy}+\frac{18}{xyz}+\frac{4}{xyz^2}+\frac{10}{xy^2}+\frac{16}{xy^2z}+\frac{6}{xy^2z^2}+\frac{5}{xy^3z}+\frac{4}{xy^3z^2}+\frac{1}{xy^4z^2}$	4225: $\left(\frac{(x+yz)(xz+x+yz)^3}{x^3y^2z^3}, z, \frac{y}{x}\right)$

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Table 160 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 160a
4292	$x+yz^2+2yz+y+3z+\frac{3}{z}+\frac{2}{y}+\frac{4}{yz}+\frac{2}{yz^2}+\frac{yz^3}{x}+\frac{4yz^2}{x}+\frac{6yz}{x}+\frac{4y}{x}+\frac{y}{xz}+\frac{3z^2}{x}+\frac{12z}{x}+\frac{18}{x}+\frac{12}{xz}+\frac{3}{xz^2}+\frac{3z}{xy}+\frac{12}{xy}+\frac{18}{xyz}+\frac{12}{xyz^2}+\frac{3}{xyz^3}+\frac{1}{xy^2}+\frac{4}{xy^2z}+\frac{6}{xy^2z^2}+\frac{4}{xy^2z^3}+\frac{1}{xy^2z^4}$	4281: $\left(x+z,\frac{xy}{x+z},\frac{z}{x}\right)$
4295	$xy^2+2xyz+2xy+xz^2+2xz+x+6y+8z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{4y}{xz}+\frac{19}{x}+\frac{4}{xz}+\frac{12z}{xy}+\frac{6}{xy}+\frac{z^2}{xy^2}+\frac{18}{x^2z}+\frac{28}{x^2y}+\frac{6}{x^2yz}+\frac{6z}{x^2y^2}+\frac{6}{x^3z^2}+\frac{32}{x^3yz}+\frac{2}{x^3yz^2}+\frac{15}{x^3y^2}+\frac{18}{x^4yz^2}+\frac{20}{x^4y^2z}+\frac{4}{x^5yz^3}+\frac{15}{x^5y^2z^2}+\frac{6}{x^6y^2z^3}+\frac{1}{x^7y^2z^4}$	4118: $\left(\frac{(xy^2z+yz+1)(xy^2z+(yz+1)^2)}{xy^4z^2},\frac{x^2y^5z^2}{(xy^2z+yz+1)(xy^2z+(yz+1)^2)},\frac{xy^5z^3}{(xy^2z+yz+1)(xy^2z+(yz+1)^2)}\right)$
4301	$xy^2+2xyz+2xy+xz^2+2xz+x+\frac{2y^2}{z}+8y+\frac{2y}{z}+8z+\frac{2z^2}{y}+\frac{2z}{y}+\frac{y^2}{xz^2}+\frac{10y}{xz}+\frac{19}{x}+\frac{4}{xz}+\frac{10z}{xy}+\frac{4}{xy}+\frac{z^2}{xy^2}+\frac{4y}{x^2z^2}+\frac{18}{x^2z}+\frac{18}{x^2y}+\frac{2}{x^2yz}+\frac{4z}{x^2y^2}+\frac{6}{x^3z^2}+\frac{14}{x^3yz}+\frac{6}{x^3y^2}+\frac{4}{x^4yz^2}+\frac{4}{x^4y^2z}+\frac{1}{x^5y^2z^2}$	4143: $\left(\frac{(yz+1)(xy+1)(xy+yz+1)}{xy^3z},\frac{x^2y^4z}{(yz+1)(xy+1)(xy+yz+1)},\frac{xy^4z^2}{(yz+1)(xy+1)(xy+yz+1)}\right)$
4303	$x+\frac{x}{z}+\frac{x}{y}+y+\frac{3y}{z}+\frac{3y}{z^2}+z+\frac{9}{z}+\frac{3z}{y}+\frac{9}{y}+\frac{3z}{y^2}+\frac{2y^2}{xz^2}+\frac{3y^2}{xz^3}+\frac{8y}{xz}+\frac{15y}{xz^2}+\frac{12}{x}+\frac{30}{xz}+\frac{8z}{xy}+\frac{30}{xy}+\frac{2z^2}{xy^2}+\frac{15z}{xy^2}+\frac{3z^2}{xy^3}+\frac{y^3}{x^2z^4}+\frac{7y^2}{x^2z^3}+\frac{21y}{x^2z^2}+\frac{35}{x^2z}+\frac{35}{x^2y}+\frac{21z}{x^2y^2}+\frac{7z^2}{x^2y^3}+\frac{z^3}{x^2y^4}$	4281: $\left(\frac{y(x+z)}{x},x,z\right)$
4307	$x+y+\frac{3y}{z}+\frac{2y}{z^2}+z+\frac{6}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{2z}{y^2}+\frac{y^2}{xz}+\frac{3y^2}{xz^2}+\frac{3y^2}{xz^3}+\frac{y^2}{xz^4}+\frac{3y}{x}+\frac{12y}{xz}+\frac{15y}{xz^2}+\frac{6y}{xz^3}+\frac{3z}{x}+\frac{18}{x}+\frac{30}{xz}+\frac{15}{xz^2}+\frac{z^2}{xy}+\frac{12z}{xy}+\frac{30}{xy}+\frac{20}{xyz}+\frac{3z^2}{xy^2}+\frac{15z}{xy^2}+\frac{15}{xy^2}+\frac{3z^2}{xy^3}+\frac{6z}{xy^3}+\frac{z^2}{xy^4}$	4190: $\left(x,yz(z+1)^3,y(z+1)^3\right)$ 4261: $\left(x,y(z+1)^2,yz(z+1)^2\right)$ 4281: $\left(x+z,y,\frac{yz}{x}\right)$ 4311: $\left(x,\frac{y^2}{xz+y},\frac{xyz}{xz+y}\right)$
4311	$\frac{x^3z^4}{y^6}+\frac{2x^2z^2}{y^3}+\frac{3x^2z^3}{y^4}+\frac{8x^2z^3}{y^5}+x+\frac{3xz}{y}+\frac{3xz^2}{y^2}+\frac{8xz}{y^2}+\frac{18xz^2}{y^3}+\frac{28xz^2}{y^4}+y+z+\frac{12z}{y}+\frac{12}{y}+\frac{45z}{y^2}+\frac{56z}{y^3}+\frac{2y}{x}+\frac{3y}{xz}+\frac{18}{x}+\frac{8}{xz}+\frac{60}{xy}+\frac{70}{xy^2}+\frac{y^2}{x^2z}+\frac{12y}{x^2z}+\frac{2y}{x^2z^2}+\frac{45}{x^2z}+\frac{56}{x^2yz}+\frac{3y^2}{x^3z^2}+\frac{18y}{x^3z^2}+\frac{28}{x^3z^2}+\frac{3y^2}{x^4z^3}+\frac{8y}{x^4z^3}+\frac{y^2}{x^5z^4}$	4307: $\left(x,y+z,\frac{z(y+z)}{xy}\right)$

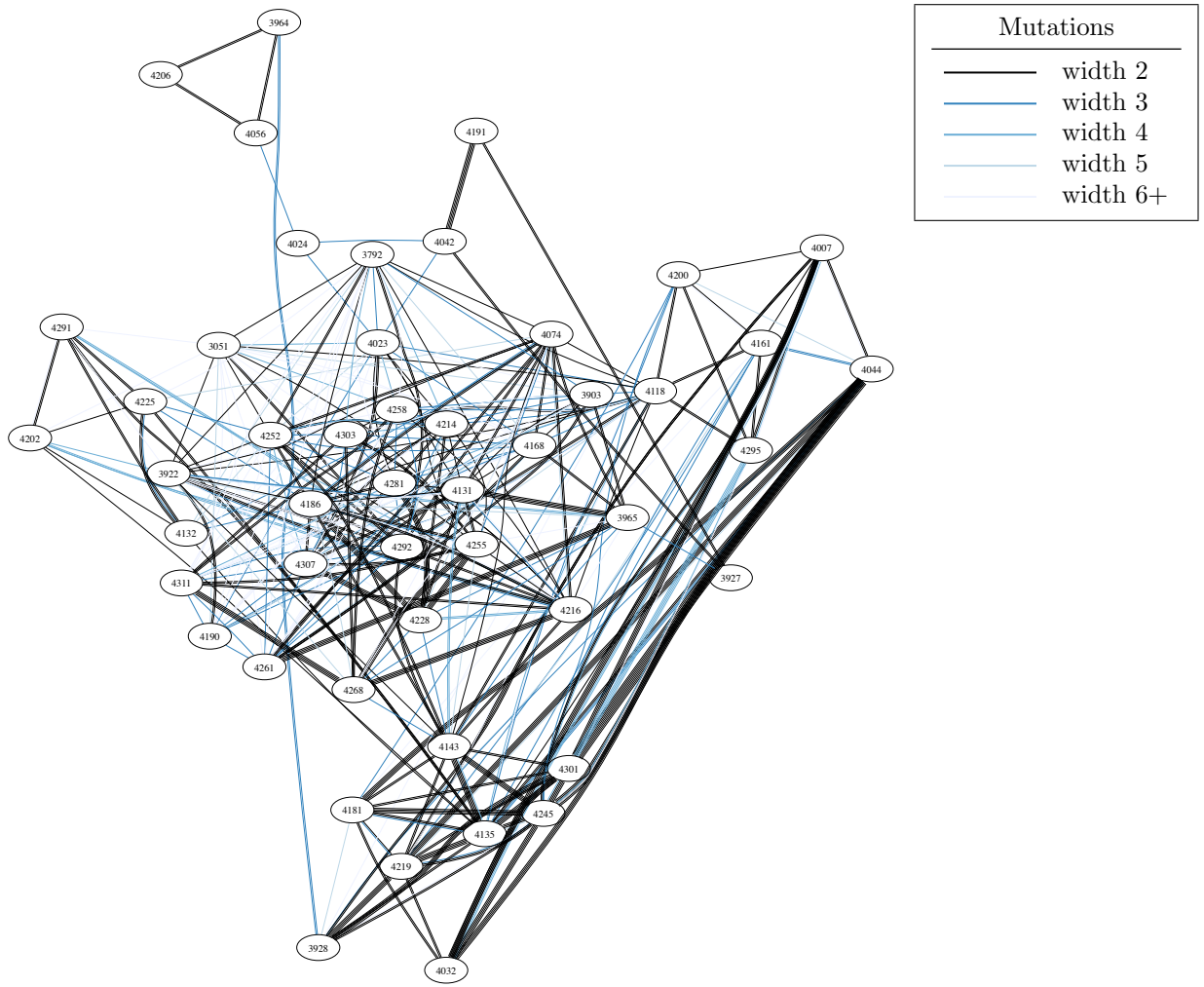

Figure 160b. All mutations between Minkowski polynomials in bucket 160

Bucket 161

Any two Minkowski polynomials in bucket 161 are connected by a sequence of mutations, but it is not possible to insist that all of the Laurent polynomials involved are Minkowski polynomials. The smallest number of additional Laurent polynomials that one needs to add in order to connect up the bucket is two, and one can insist that both of these Laurent polynomials g, h have reflexive Newton polytopes. There is a unique choice of such g and h: this is shown, together with a collection of mutations that together connect any two Minkowski polynomials in bucket 161, in Figure 161 and Table 161. Note that the collection of mutations connecting bucket 161 is not unique. The Laurent polynomials g and h are indicated in red.

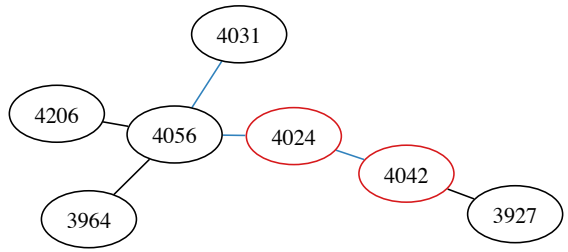

Figure 161. Selected width-2 mutations that connect up Minkowski polynomials in bucket 161

Table 161. Laurent polynomials and selected mutations for bucket 161.

Node	Laurent polynomial	Mutations from Figure 161
3927	$xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+4y+z+\frac{3}{y}+\frac{5}{yz}+\frac{4}{y^2z}+\frac{2}{y^3z^2}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{xy^3z}+\frac{1}{xy^4z^2}$	4042: $\left(\frac{x^2+xyz+y^2z}{x^2yz}, \frac{x}{y}, \frac{y^3z}{x^3}\right)$
3964	$xyz^3+3xyz^2+3xyz+xy+xz^2+2xz+x+yz^2+2yz+y+4z+\frac{3}{z}+\frac{2}{y}+\frac{2}{yz}+\frac{2}{x}+\frac{2}{xz}+\frac{4}{xyz}+\frac{3}{xyz^2}+\frac{1}{xy^2z^2}+\frac{1}{x^2yz^2}+\frac{1}{x^2y^2z^3}$	4056: $\left(\frac{x^2}{x+y+z}, \frac{x+y+z}{yz}, \frac{y}{x}\right)$
4024	$\frac{x^3}{y^3z^2}+\frac{x^2}{yz}+\frac{3x^2}{y^2z}+\frac{3x^2}{y^3z^2}+x+\frac{3x}{y}+\frac{5x}{yz}+\frac{6x}{y^2z}+\frac{3x}{y^3z^2}+y+z+\frac{3}{y}+\frac{7}{yz}+\frac{3}{y^2z}+\frac{1}{y^3z^2}+\frac{3yz}{x}+\frac{4y}{x}+\frac{6}{x}+\frac{3}{xyz}+\frac{3y^2z}{x^2}+\frac{3y}{x^2}+\frac{y^3z}{x^3}$	4042: $\left(\frac{x+y^2z}{yz}, x, \frac{y(x+y^2z)}{x^3}\right)$ 4056: $\left(x, y, \frac{x(x+1)}{yz}\right)$
4031	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{3x}{yz}+y+\frac{3y}{z}+z+\frac{6}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{y^2}{xz}+\frac{3y}{x}+\frac{3y}{xz}+\frac{3z}{x}+\frac{6}{x}+\frac{3}{xz}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{3}{xy}+\frac{1}{xyz}$	4056: $\left(\frac{y(x+1)}{x}, \frac{z(x+1)}{x}, x\right)$

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Table 161 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 161
4042	$\frac{x^4}{y^5z^3}+\frac{2x^3}{y^3z^2}+\frac{3x^3}{y^4z^2}+\frac{x^2}{yz}+\frac{5x^2}{y^2z}+\frac{3x^2}{y^3z}+\frac{3x^2}{y^3z^2}+x+\frac{4x}{y}+\frac{4x}{yz}+\frac{x}{y^2}+\frac{6x}{y^2z}+y+z+\frac{3}{y}+\frac{3}{yz}+\frac{3yz}{x}+\frac{3y}{x}+\frac{3}{x}+\frac{3y^2z}{x^2}+\frac{y}{x^2}+\frac{y^3z}{x^3}$	3927: $\left(\frac{y^2z+yz+1}{xy^2z},\frac{y^2z+yz+1}{xy^3z},y^3z\right)$ 4024: $\left(y,\frac{xy^2z}{x+y^2z},\frac{(x+y^2z)^2}{x^3yz}\right)$
4056	$\frac{x^2}{yz}+x+\frac{3x}{z}+\frac{3x}{y}+\frac{x}{yz}+y+\frac{3y}{z}+z+\frac{3}{z}+\frac{3z}{y}+\frac{3}{y}+\frac{y^2}{xz}+\frac{4y}{x}+\frac{3y}{xz}+\frac{4z}{x}+\frac{6}{x}+\frac{z^2}{xy}+\frac{3z}{xy}+\frac{y^2}{x^2z}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{z^2}{x^2y}$	3964: $\left(\frac{xyz^2+xyz+1}{yz},\frac{xyz^2+xyz+1}{y},\frac{xyz^2+xyz+1}{xy^2z^2}\right)$ 4024: $\left(x,y,\frac{x(x+1)}{yz}\right)$ 4031: $\left(z,\frac{xz}{z+1},\frac{yz}{z+1}\right)$ 4206: $\left(\frac{(yz^2+yz+1)^3}{xy^2z^3},\frac{(yz^2+yz+1)^3}{xy^2z^2},\frac{(yz^2+yz+1)^3}{xy^3z^4}\right)$
4206	$x+yz^3+3yz^2+3yz+y+4z+\frac{3}{z}+\frac{4}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{yz^4}{x}+\frac{4yz^3}{x}+\frac{6yz^2}{x}+\frac{4yz}{x}+\frac{y}{x}+\frac{4z^2}{x}+\frac{12z}{x}+\frac{12}{x}+\frac{4}{xz}+\frac{6}{xy}+\frac{12}{xyz}+\frac{6}{xyz^2}+\frac{4}{xy^2z^2}+\frac{4}{xy^2z^3}+\frac{1}{xy^3z^4}$	4056: $\left(\frac{(x+y+z)^3}{x^2yz},\frac{x^2}{yz},\frac{y}{x}\right)$

Bucket 162

Bucket 162 consists of a single Laurent polynomial:

$$f = xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+4y+z+\frac{4}{y}+\frac{5}{yz}+\frac{5}{y^2z}+\frac{2}{y^3z^2}+\frac{1}{x}+\frac{2}{xy}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{2}{xy^3z}+\frac{1}{xy^4z^2}$$

The Newton polytope of f has reflexive ID 3927.

Bucket 163

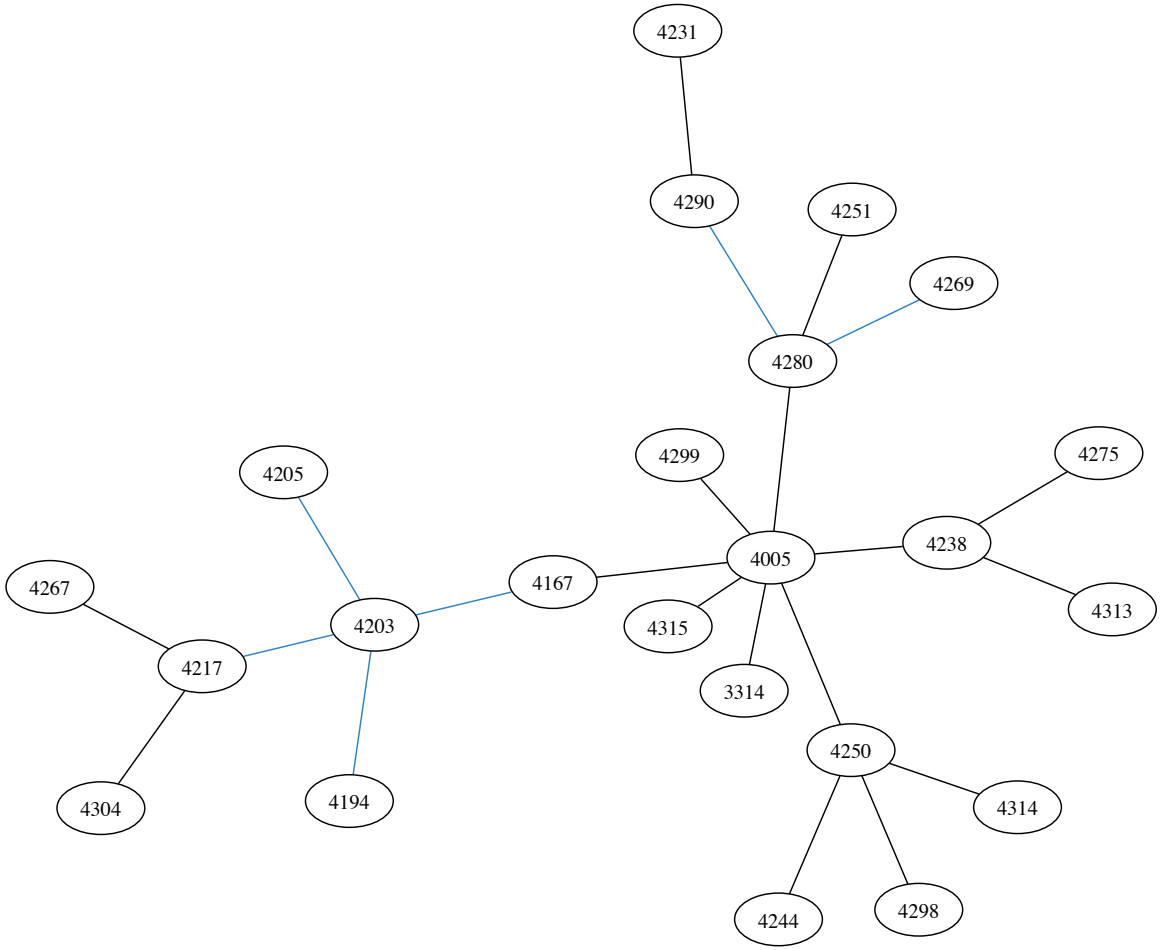

Figure 163a. Selected width-2 and width-3 mutations between Minkowski polynomials in bucket 163

Table 163. Laurent polynomials and selected mutations for bucket 163.

Node	Laurent polynomial	Mutations from Figure 163a
3314	$xy^2+2xyz^2+4xyz+2xy+xz^4+4xz^3+6xz^2+4xz+x+\frac{4y}{z}+4z+\frac{4}{z}+\frac{6}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{4}{x^2yz^3}+\frac{1}{x^3y^2z^4}$	4005: $\left(\frac{y+1}{x^3y^4z^2}, \frac{x^2y^4z}{y+1}, xyz\right)$
4005	$xy^3+2xy^2z+3xy^2+xyz^2+4xyz+3xy+xz^2+2xz+x+4y+4z+\frac{4z}{y}+\frac{4}{y}+\frac{2}{xz}+\frac{6}{xy}+\frac{4}{xyz}+\frac{6}{xy^2}+\frac{2}{xy^2z}+\frac{4}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	3314: $\left(\frac{xyz+1}{x^3y^2z^4}, xyz, \frac{x^2yz^4}{xyz+1}\right)$ 4167: $\left(\frac{y^2z(yz+1)}{x^2}, \frac{x}{y}, \frac{x}{yz+1}\right)$ 4238: $\left(\frac{(y+1)^2(xyz+1)}{x^3y^4z^2}, xyz, \frac{x^2y^2z}{(y+1)^2(xyz+1)}\right)$ 4250: $\left(\frac{z(y+1)^2}{x^2y^2}, \frac{x}{z}, \frac{xy^3}{(y+1)^2}\right)$ 4280: $\left(\frac{z(x+y)^3}{x^3y^2}, \frac{x}{z}, \frac{xy^3}{(x+y)^3}\right)$ 4299: $\left(\frac{x(yz+1)^4}{y^4z^2}, \frac{y}{x}, \frac{y^2z}{(yz+1)^4}\right)$ 4315: $\left(\frac{(z+1)(xyz+1)^4}{x^3y^2z}, \frac{1}{z}, \frac{x^2yz}{(z+1)(xyz+1)^4}\right)$
4167	$xz^2+2xz+x+\frac{xz}{y}+\frac{4x}{y}+\frac{3x}{yz}+\frac{2x}{y^2z}+\frac{3x}{y^2z^2}+\frac{x}{y^3z^3}+3yz^2+4yz+y+3z+\frac{3}{z}+\frac{4}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{3y^2z^2}{x}+\frac{2y^2z}{x}+\frac{3yz}{x}+\frac{4y}{x}+\frac{2}{xz}+\frac{y^3z^2}{x^2}+\frac{y^2z}{x^2}$	4005: $\left(z(xyz+1), \frac{z(xyz+1)}{y}, \frac{xy^2}{xyz+1}\right)$ 4203: $\left(\frac{x}{y+1}, \frac{1}{yz}, z\right)$
4194	$xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+4y+z+\frac{4}{y}+\frac{7}{yz}+\frac{7}{y^2z}+\frac{4}{y^3z^2}+\frac{3}{x}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{8}{xy^2z}+\frac{8}{xy^3z}+\frac{6}{xy^4z^2}+\frac{3}{x^2y^3z}+\frac{3}{x^2y^4z}+\frac{4}{x^2y^5z^2}+\frac{1}{x^3y^6z^2}$	4203: $\left(xy^2, \frac{1}{y}, \frac{(xy+1)^2}{x^2z}\right)$
4203	$xy^2+2xyz+2xy+xz^2+2xz+x+\frac{y^2}{z}+4y+\frac{3y}{z}+3z+\frac{3}{z}+\frac{3z}{y}+\frac{4}{y}+\frac{1}{yz}+\frac{2y}{xz}+\frac{3}{x}+\frac{6}{xz}+\frac{6}{xy}+\frac{6}{xyz}+\frac{3}{xy^2}+\frac{2}{xy^2z}+\frac{1}{x^2z}+\frac{3}{x^2yz}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3z}$	4167: $\left(\frac{x(yz+1)}{yz}, \frac{1}{yz}, z\right)$ 4194: $\left(xy^2, \frac{1}{y}, \frac{(xy+1)^2}{x^2y^4z}\right)$ 4205: $\left(\frac{x+yz}{y^2z^2}, \frac{xyz}{x+yz}, yz^2\right)$ 4217: $\left(x, y, \frac{xy+1}{xy^2z}\right)$
4205	$xz^2+2xz+x+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^3+3yz^2+3yz+y+5z+\frac{3}{z}+\frac{5}{yz}+\frac{3}{yz^2}+\frac{1}{y^2z^3}+\frac{3yz^2}{x}+\frac{6yz}{x}+\frac{3y}{x}+\frac{7}{x}+\frac{6}{xz}+\frac{3}{xyz^2}+\frac{3yz}{x^2}+\frac{3y}{x^2}+\frac{3}{x^2z}+\frac{y}{x^3}$	4203: $\left(y(xy+1), \frac{(xy+1)^2}{x^2z}, \frac{xz}{xy+1}\right)$

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Table 163 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 163a
4217	$xy^2+2xy+x+\frac{2x}{z}+\frac{2x}{yz}+\frac{x}{y^2z^2}+y^3z+3y^2z+3yz+4y+z+\frac{4}{y}+\frac{5}{yz}+\frac{5}{y^2z}+\frac{2}{y^3z^2}+\frac{y^2z}{x}+\frac{3yz}{x}+\frac{3z}{x}+\frac{3}{x}+\frac{z}{xy}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{3}{xy^2z}+\frac{3}{xy^3z}+\frac{1}{xy^4z^2}$	4203: $\left(x, y, \frac{xy+1}{xy^2z}\right)$ 4267: $\left(\frac{x^2}{x+y+z}, \frac{y}{x}, \frac{x^2}{yz}\right)$ 4304: $\left(\frac{(yz^2+yz+1)^3}{xy^2z^4}, z, y\right)$
4231	$xy^2+2xyz+2xy+xz^2+2xz+x+4y+4z+\frac{4z}{y}+\frac{4}{y}+\frac{2y}{xz}+\frac{6}{x}+\frac{6}{xz}+\frac{12}{xy}+\frac{6}{xyz}+\frac{6}{xy^2}+\frac{2}{xy^2z}+\frac{4}{x^2z}+\frac{12}{x^2yz}+\frac{12}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^3z^2}+\frac{4}{x^3yz^2}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	4290: $\left(\frac{(x+y+z)^3}{x^2z^2}, \frac{z}{y}, \frac{x^3z}{(x+y+z)^3}\right)$
4238	$xy^2z^2+2xy^2z+xy^2+2xyz^2+4xyz+2xy+xz^2+2xz+x+4yz+4y+8z+\frac{4z}{y}+\frac{4}{y}+\frac{6}{x}+\frac{2}{xz}+\frac{12}{xy}+\frac{4}{xyz}+\frac{6}{xy^2}+\frac{2}{xy^2z}+\frac{4}{x^2yz}+\frac{8}{x^2y^2z}+\frac{4}{x^2y^3z}+\frac{1}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{1}{x^3y^4z^2}$	4005: $\left(\frac{(y+1)(xyz+1)^2}{xy^2}, \frac{1}{xyz}, \frac{x^2y^4z}{(y+1)(xyz+1)^2}\right)$ 4275: $\left(\frac{x^2}{x+y(z+1)^2}, \frac{x+y(z+1)^2}{xyz}, \frac{y}{x}\right)$ 4313: $\left(\frac{x^5y^4z^2}{(x^2y^2z+(xyz+1)^2)^2}, \frac{(x^2y^2z+(xyz+1)^2)^2}{x^4y^3z^2}, z\right)$
4244	$xy^2z^2+2xy^2z+xy^2+2xyz^2+4xyz+2xy+xz^2+2xz+x+4yz+6y+\frac{2y}{z}+6z+\frac{2}{z}+\frac{2z}{y}+\frac{2}{y}+\frac{6}{x}+\frac{6}{xz}+\frac{1}{xz^2}+\frac{6}{xy}+\frac{4}{xyz}+\frac{1}{xy^2}+\frac{4}{x^2yz}+\frac{2}{x^2yz^2}+\frac{2}{x^2y^2z}+\frac{1}{x^3y^2z^2}$	4250: $\left(x+z, \frac{yz}{x+z}, \frac{1}{xy}\right)$
4250	$xy^2+2xy+\frac{2xy}{z}+x+\frac{4x}{z}+\frac{x}{z^2}+\frac{2x}{yz}+\frac{2x}{yz^2}+\frac{x}{y^2z^2}+y^2z+2yz+4y+z+\frac{3}{z}+\frac{4}{y}+\frac{6}{yz}+\frac{3}{y^2z}+\frac{2yz}{x}+\frac{4z}{x}+\frac{3}{x}+\frac{2z}{xy}+\frac{6}{xy}+\frac{3}{xy^2}+\frac{z}{x^2}+\frac{2z}{x^2y}+\frac{z}{x^2y^2}$	4005: $\left(\frac{(xyz+1)^2}{xy}, \frac{1}{xyz}, \frac{(xyz+1)^2}{xy^2}\right)$ 4244: $\left(\frac{x}{xyz+1}, \frac{xyz+1}{xz}, \frac{x^2yz}{xyz+1}\right)$ 4298: $\left(\frac{(xyz+x+y)^2}{xy^2}, \frac{x^2y^2z}{(xyz+x+y)^2}, \frac{(xyz+x+y)^2}{x^2y}\right)$ 4314: $\left(\frac{x^3y^3z^2}{(y+z)(xyz+y+z)^2}, \frac{(y+z)(xyz+y+z)^2}{x^2y^2z^2}, \frac{x^3y^2z^3}{(y+z)(xyz+y+z)^2}\right)$
4251	$xy^2z^2+2xy^2z+xy^2+2xyz^2+4xyz+2xy+xz^2+2xz+x+2yz+4y+\frac{2y}{z}+4z+\frac{4}{z}+\frac{2z}{y}+\frac{4}{y}+\frac{2}{yz}+\frac{1}{x}+\frac{2}{xz}+\frac{1}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{1}{xy^2}+\frac{2}{xy^2z}+\frac{1}{xy^2z^2}$	4280: $\left(\frac{(x+z)(x+y)}{xz^2}, \frac{x}{y}, \frac{z}{x}\right)$
4267	$\frac{x^2}{yz}+\frac{x^2}{y^2z}+x+\frac{3x}{z}+\frac{4x}{y}+\frac{4x}{yz}+\frac{4x}{y^2}+y+\frac{3y}{z}+z+\frac{6}{z}+\frac{5z}{y}+\frac{12}{y}+\frac{6z}{y^2}+\frac{y^2}{xz}+\frac{4y}{x}+\frac{4y}{xz}+\frac{5z}{x}+\frac{12}{x}+\frac{2z^2}{xy}+\frac{12z}{xy}+\frac{4z^2}{xy^2}+\frac{y^2}{x^2z}+\frac{4y}{x^2}+\frac{6z}{x^2}+\frac{4z^2}{x^2y}+\frac{z^3}{x^2y^2}$	4217: $\left(\frac{x(y^2z+yz+1)}{yz}, \frac{x(y^2z+yz+1)}{z}, \frac{x(y^2z+yz+1)}{y^2z^2}\right)$

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Table 163 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 163a
4269	$\frac{x^2z}{y^2}+\frac{2x^2z}{y^3}+\frac{x^2z}{y^4}+x+\frac{2xz}{y}+\frac{4x}{y}+\frac{6xz}{y^2}+\frac{3x}{y^2}+\frac{4xz}{y^3}+y+\frac{2y}{z}+z+\frac{3}{z}+\frac{6z}{y}+\frac{9}{y}+\frac{6z}{y^2}+\frac{2y^2}{xz}+\frac{y^2}{xz^2}+\frac{4y}{x}+\frac{6y}{xz}+\frac{2z}{x}+\frac{9}{x}+\frac{4z}{xy}+\frac{y^3}{x^2z^2}+\frac{3y^2}{x^2z}+\frac{3y}{x^2}+\frac{z}{x^2}$	4280: $\left(\frac{yz}{x}, y, \frac{x^2}{x+z}\right)$
4275	$x+\frac{2x}{yz}+\frac{x}{y^2z^2}+yz^2+2yz+y+4z+\frac{4}{z}+\frac{3}{y}+\frac{6}{yz}+\frac{3}{yz^2}+\frac{2yz^3}{x}+\frac{8yz^2}{x}+\frac{12yz}{x}+\frac{8y}{x}+\frac{2y}{xz}+\frac{3z^2}{x}+\frac{12z}{x}+\frac{18}{x}+\frac{12}{xz}+\frac{3}{xz^2}+\frac{yz^4}{x^2}+\frac{6yz^3}{x^2}+\frac{15yz^2}{x^2}+\frac{20yz}{x^2}+\frac{15y}{x^2}+\frac{6y}{x^2z}+\frac{y}{x^2z^2}$	4238: $\left(\frac{x^2y^2z+(xyz+1)^2}{xy^2z}, \frac{x^2y^2z+(xyz+1)^2}{xy^2}, \frac{1}{xyz}\right)$
4280	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{3x^2}{yz^2}+\frac{3x^2}{y^2z}+x+\frac{4x}{z}+\frac{3x}{z^2}+\frac{4x}{y}+\frac{9x}{yz}+\frac{3x}{y^2}+y+\frac{2y}{z}+\frac{y}{z^2}+z+\frac{9}{z}+\frac{2z}{y}+\frac{9}{y}+\frac{z}{y^2}+\frac{yz}{x}+\frac{4y}{x}+\frac{3y}{xz}+\frac{4z}{x}+\frac{9}{x}+\frac{3z}{xy}+\frac{2yz}{x^2}+\frac{3y}{x^2}+\frac{3z}{x^2}+\frac{yz}{x^3}$	4005: $\left(\frac{(xyz+1)^3}{x^3y^3z^2}, \frac{(xyz+1)^3}{x^3y^4z^2}, \frac{(xyz+1)^3}{x^2y^2z}\right)$ 4251: $\left(\frac{(z+1)(y+1)}{xyz^2}, \frac{(z+1)(y+1)}{xy^2z^2}, \frac{(z+1)(y+1)}{xyz}\right)$ 4269: $\left(\frac{z(x+y)}{y}, y, \frac{xz(x+y)}{y^2}\right)$ 4290: $\left(\frac{xz}{y+z}, z, \frac{xy}{y+z}\right)$
4290	$x+\frac{2x}{z}+\frac{x}{z^2}+\frac{2x}{y}+\frac{2x}{yz}+\frac{x}{y^2}+y+\frac{4y}{z}+\frac{3y}{z^2}+z+\frac{9}{z}+\frac{4z}{y}+\frac{9}{y}+\frac{3z}{y^2}+\frac{2y^2}{xz}+\frac{3y^2}{xz^2}+\frac{6y}{x}+\frac{12y}{xz}+\frac{6z}{x}+\frac{18}{x}+\frac{2z^2}{xy}+\frac{12z}{xy}+\frac{3z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	4231: $\left(\frac{(xyz+y+1)^3}{x^2y^3z}, \frac{(xyz+y+1)^3}{x^3y^4z^2}, \frac{(xyz+y+1)^3}{x^3y^3z^2}\right)$ 4280: $\left(x+z, \frac{yz}{x}, y\right)$
4298	$xz^2+2xz+x+\frac{4xz}{y}+\frac{4x}{y}+\frac{6x}{y^2}+\frac{2x}{y^2z}+\frac{4x}{y^3z}+\frac{x}{y^4z^2}+yz^2+2yz+y+8z+\frac{18}{y}+\frac{6}{yz}+\frac{16}{y^2z}+\frac{5}{y^3z^2}+\frac{4yz}{x}+\frac{4y}{x}+\frac{18}{x}+\frac{6}{xz}+\frac{24}{xyz}+\frac{10}{xy^2z^2}+\frac{6y}{x^2}+\frac{2y}{x^2z}+\frac{16}{x^2z}+\frac{10}{x^2yz^2}+\frac{4y}{x^3z}+\frac{5}{x^3z^2}+\frac{y}{x^4z^2}$	4250: $\left(\frac{(xyz+x+z)^2}{xz^2}, \frac{(xyz+x+z)^2}{x^2z}, \frac{x^2yz^2}{(xyz+x+z)^2}\right)$
4299	$xz^2+2xz+x+\frac{4xz}{y}+\frac{4x}{y}+\frac{6x}{y^2}+\frac{2x}{y^2z}+\frac{4x}{y^3z}+\frac{x}{y^4z^2}+3yz^2+4yz+y+12z+\frac{18}{y}+\frac{4}{yz}+\frac{12}{y^2z}+\frac{3}{y^3z^2}+\frac{3y^2z^2}{x}+\frac{2y^2z}{x}+\frac{12yz}{x}+\frac{4y}{x}+\frac{18}{x}+\frac{2}{xz}+\frac{12}{xyz}+\frac{3}{xy^2z^2}+\frac{y^3z^2}{x^2}+\frac{4y^2z}{x^2}+\frac{6y}{x^2}+\frac{4}{x^2z}+\frac{1}{x^2yz^2}$	4005: $\left(x(y+1)^2, xy(y+1)^2, \frac{1}{x^2y^2z(y+1)^2}\right)$
4304	$x+yz^3+3yz^2+3yz+y+4z+\frac{4}{z}+\frac{5}{yz}+\frac{5}{yz^2}+\frac{2}{y^2z^3}+\frac{yz^4}{x}+\frac{5yz^3}{x}+\frac{10yz^2}{x}+\frac{10yz}{x}+\frac{5y}{x}+\frac{y}{xz}+\frac{5z^2}{x}+\frac{20z}{x}+\frac{30}{x}+\frac{20}{xz}+\frac{5}{xz^2}+\frac{10}{xy}+\frac{30}{xyz}+\frac{30}{xyz^2}+\frac{10}{xyz^3}+\frac{10}{xy^2z^2}+\frac{20}{xy^2z^3}+\frac{10}{xy^2z^4}+\frac{5}{xy^3z^4}+\frac{5}{xy^3z^5}+\frac{1}{xy^4z^6}$	4217: $\left(\frac{(y^2z+yz+1)^3}{xy^4z^2}, z, y\right)$

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Table 163 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 163a
4313	$xy^2z^4+4xy^2z^3+6xy^2z^2+4xy^2z+xy^2+2xyz^2+4xyz+2xy+x+8yz^3+24yz^2+24yz+8y+8z+\frac{28z^2}{x}+\frac{60z}{x}+\frac{36}{x}+\frac{4}{xz}+\frac{12}{xy}+\frac{4}{xyz}+\frac{56z}{x^2y}+\frac{80}{x^2y}+\frac{24}{x^2yz}+\frac{8}{x^2y^2z}+\frac{70}{x^3y^2}+\frac{60}{x^3y^2z}+\frac{6}{x^3y^2z^2}+\frac{2}{x^3y^3z^2}+\frac{56}{x^4y^3z}+\frac{24}{x^4y^3z^2}+\frac{28}{x^5y^4z^2}+\frac{4}{x^5y^4z^3}+\frac{8}{x^6y^5z^3}+\frac{1}{x^7y^6z^4}$	$4238\colon \left(\frac{(x^2y^2z+(xyz+1)^2)^2}{x^3y^4z^2}, \frac{x^4y^5z^2}{(x^2y^2z+(xyz+1)^2)^2}, z\right)$
4314	$xy^2+2xyz+2xy+xz^2+2xz+x+\frac{4y^2}{z}+12y+\frac{4y}{z}+12z+\frac{4z^2}{y}+\frac{4z}{y}+\frac{6y^2}{xz^2}+\frac{24y}{xz}+\frac{2y}{xz^2}+\frac{36}{x}+\frac{6}{xz}+\frac{24z}{xy}+\frac{6}{xy}+\frac{6z^2}{xy^2}+\frac{2z}{xy^2}+\frac{4y^2}{x^2z^3}+\frac{20y}{x^2z^2}+\frac{40}{x^2z}+\frac{40}{x^2y}+\frac{20z}{x^2y^2}+\frac{4z^2}{x^2y^3}+\frac{y^2}{x^3z^4}+\frac{6y}{x^3z^3}+\frac{15}{x^3z^2}+\frac{20}{x^3yz}+\frac{15}{x^3y^2}+\frac{6z}{x^3y^3}+\frac{z^2}{x^3y^4}$	$4250\colon \left(\frac{(x+z)(xyz+x+z)^2}{x^2y^2z^2}, \frac{x^3y^3z^2}{(x+z)(xyz+x+z)^2}, \frac{x^2y^3z^3}{(x+z)(xyz+x+z)^2}\right)$
4315	$xy^2z^4+4xy^2z^3+6xy^2z^2+4xy^2z+xy^2+2xyz^2+4xyz+2xy+x+4yz^3+16yz^2+24yz+16y+\frac{4y}{z}+4z+\frac{4}{z}+\frac{6z^2}{x}+\frac{24z}{x}+\frac{36}{x}+\frac{24}{xz}+\frac{6}{xz^2}+\frac{2}{xy}+\frac{4}{xyz}+\frac{2}{xyz^2}+\frac{4z}{x^2y}+\frac{16}{x^2y}+\frac{24}{x^2yz}+\frac{16}{x^2yz^2}+\frac{4}{x^2yz^3}+\frac{1}{x^3y^2}+\frac{4}{x^3y^2z}+\frac{6}{x^3y^2z^2}+\frac{4}{x^3y^2z^3}+\frac{1}{x^3y^2z^4}$	$4005\colon \left(\frac{(y+1)(xyz+1)^4}{x^3y^4z^2}, \frac{x^2y^4z}{(y+1)(xyz+1)^4}, xyz\right)$

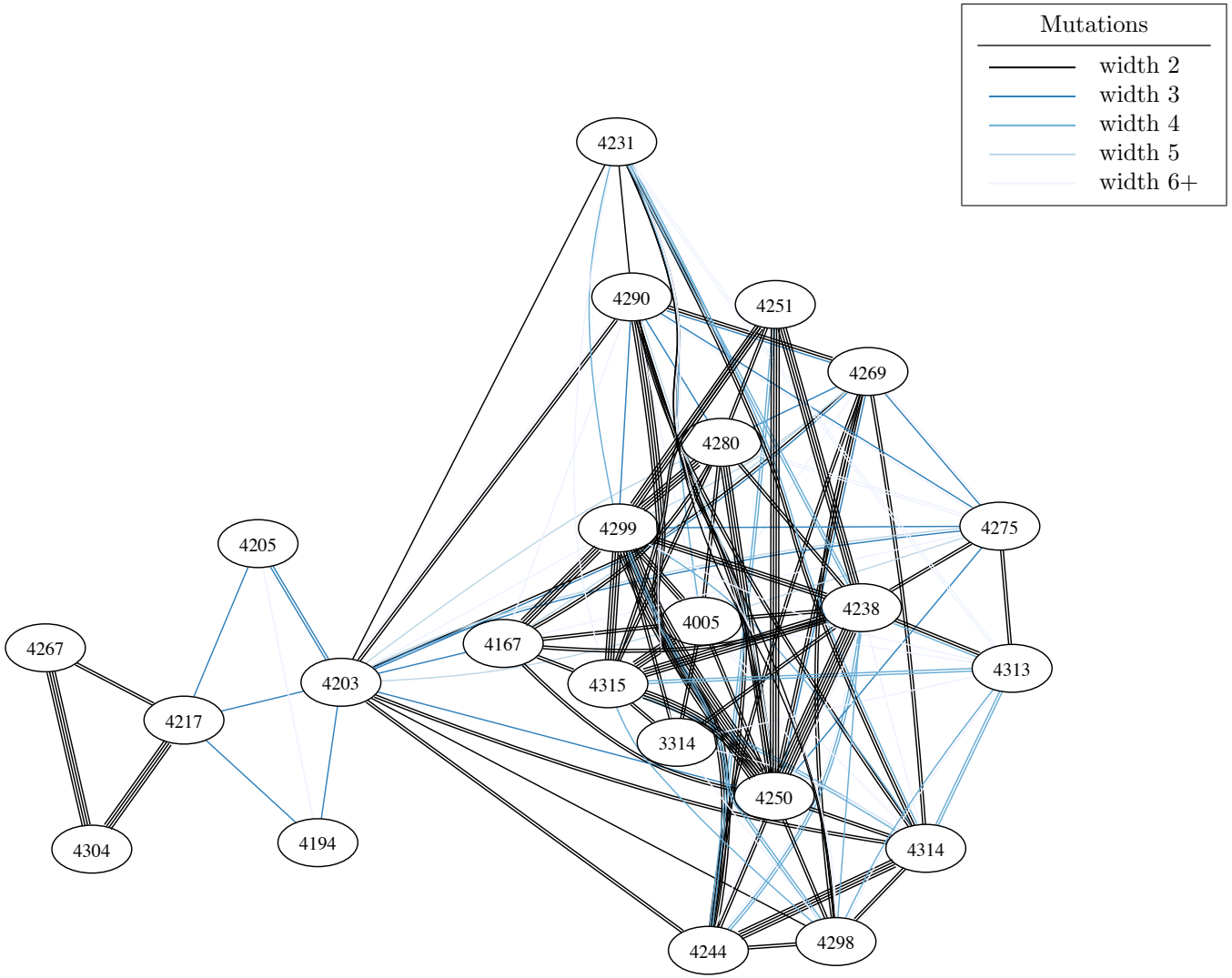
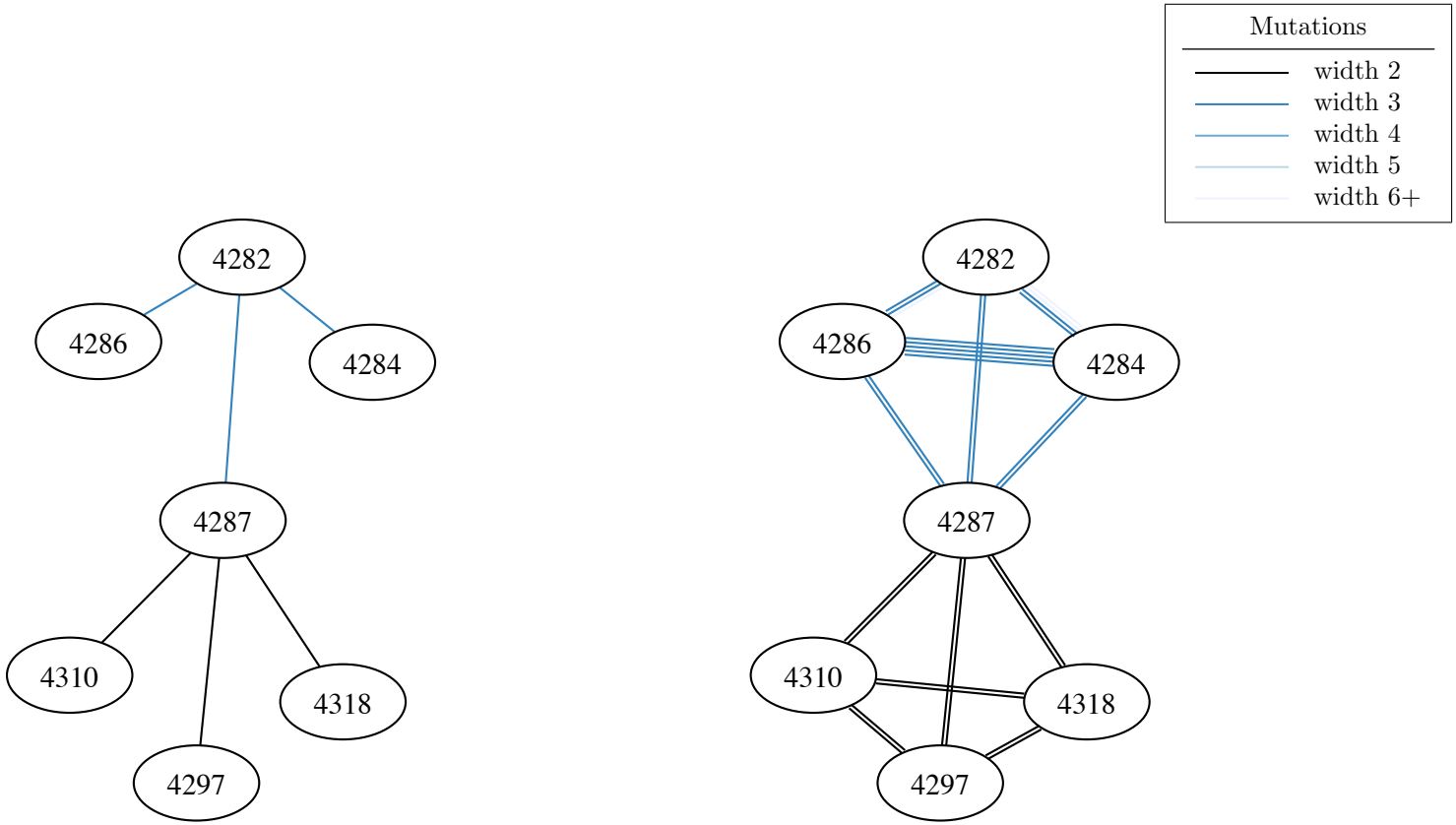


FIGURE 163B. All mutations between Minkowski polynomials in bucket 163

Bucket 164



(A) A spanning tree consisting of width-2 and width-3 mutations

(B) All mutations

Figure 164. Mutations between Minkowski polynomials in bucket 164

Table 164. Laurent polynomials and selected mutations for bucket 164.

Node	Laurent polynomial	Mutations from Figure 164a
4282	$xy^3+3xy^2z+3xy^2+3xyz^2+6xyz+3xy+xz^3+3xz^2+3xz+x+6y+12z+\frac{6z^2}{y}+\frac{12z}{y}+\frac{6}{y}+\frac{3}{xz}+\frac{18}{xy}+\frac{6}{xyz}+\frac{15z}{xy^2}+\frac{18}{xy^2}+\frac{3}{xy^2z}+\frac{12}{x^2y^2z}+\frac{20}{x^2y^3}+\frac{12}{x^2y^3z}+\frac{3}{x^3y^3z^2}+\frac{15}{x^3y^4z}+\frac{3}{x^3y^4z^2}+\frac{6}{x^4y^5z^2}+\frac{1}{x^5y^6z^3}$	4284: $\left(\frac{(xyz+1)^3}{x^2z^3}, \frac{z}{y}, \frac{xz}{(xyz+1)^3}\right)$ 4286: $\left(y^3(x+z), \frac{1}{y}, \frac{x}{y^2z(x+z)}\right)$ 4287: $\left(x(y+1)^2, \frac{1}{xyz}, \frac{y^2z}{(y+1)^2}\right)$
4284	$xy^3+3xy^2z+3xy^2+3xyz^2+6xyz+3xy+xz^3+3xz^2+3xz+x+\frac{3y^2}{z}+9y+\frac{6y}{z}+9z+\frac{3}{z}+\frac{3z^2}{y}+\frac{6z}{y}+\frac{3}{y}+\frac{3y}{xz^2}+\frac{9}{xz}+\frac{3}{xz^2}+\frac{9}{xy}+\frac{6}{xyz}+\frac{3z}{xy^2}+\frac{3}{xy^2}+\frac{1}{x^2z^3}+\frac{3}{x^2yz^2}+\frac{3}{x^2y^2z}+\frac{1}{x^2y^3}$	4282: $\left(\frac{(xyz+1)^6}{x^5y^6z^3}, \frac{x^2y^2z}{(xyz+1)^3}, \frac{x^2y^3z}{(xyz+1)^3}\right)$
4286	$xy^3+3xy^2+3xy+\frac{3xy}{z}+x+\frac{6x}{z}+\frac{3x}{yz}+\frac{3x}{yz^2}+\frac{3x}{y^2z^2}+\frac{x}{y^3z^3}+y^3z+3y^2z+3yz+6y+z+\frac{6}{y}+\frac{9}{yz}+\frac{9}{y^2z}+\frac{4}{y^3z^2}+\frac{3yz}{x}+\frac{6z}{x}+\frac{3z}{xy}+\frac{9}{xy}+\frac{9}{xy^2}+\frac{6}{xy^3z}+\frac{3z}{x^2y}+\frac{3z}{x^2y^2}+\frac{4}{x^2y^3}+\frac{z}{x^3y^3}$	4282: $\left(\frac{x^2y^4z}{xyz+1}, \frac{1}{y}, \frac{xy^3}{xyz+1}\right)$
4287	$xy^2z^3+3xy^2z^2+3xy^2z+xy^2+2xyz^3+6xyz^2+6xyz+2xy+xz^3+3xz^2+3xz+x+3yz+6y+\frac{3y}{z}+6z+\frac{6}{z}+\frac{3z}{y}+\frac{6}{y}+\frac{3}{yz}+\frac{3}{xz}+\frac{3}{xz^2}+\frac{6}{xyz}+\frac{6}{xyz^2}+\frac{3}{xy^2z}+\frac{3}{xy^2z^2}+\frac{1}{x^2yz^3}+\frac{2}{x^2y^2z^3}+\frac{1}{x^2y^3z^3}$	4282: $\left(\frac{x}{(xyz+1)^2}, xyz, \frac{(xyz+1)^2}{x^2y^2z}\right)$ 4297: $\left(\frac{z(y+z+1)}{xy^2}, \frac{xyz}{y+z+1}, \frac{y}{z}\right)$ 4310: $\left(\frac{z(x+y+z)^2}{x^2y^2}, \frac{xyz}{(x+y+z)^2}, \frac{y}{z}\right)$ 4318: $\left(\frac{(xyz^2+xyz+1)^3}{x^5y^4z^6}, \frac{x^3y^2z^3}{(xyz^2+xyz+1)^3}, xyz^2\right)$
4297	$xy^2+2xyz+2xy+xz^2+2xz+x+\frac{2y^2}{z}+6y+\frac{6y}{z}+6z+\frac{6}{z}+\frac{2z^2}{y}+\frac{6z}{y}+\frac{6}{y}+\frac{2}{yz}+\frac{y^2}{xz^2}+\frac{4y}{xz}+\frac{4y}{xz^2}+\frac{6}{x}+\frac{12}{xz}+\frac{6}{xz^2}+\frac{4z}{xy}+\frac{12}{xy}+\frac{12}{xyz}+\frac{4}{xyz^2}+\frac{z^2}{xy^2}+\frac{4z}{xy^2}+\frac{6}{xy^2}+\frac{4}{xy^2z}+\frac{1}{xy^2z^2}$	4287: $\left(\frac{xyz^2+xyz+1}{x^2yz^3}, xyz^2, xyz\right)$
4310	$\frac{x^3}{y^2z^2}+\frac{2x^2}{yz}+\frac{5x^2}{yz^2}+\frac{5x^2}{y^2z}+x+\frac{6x}{z}+\frac{10x}{z^2}+\frac{6x}{y}+\frac{20x}{yz}+\frac{10x}{y^2}+y+\frac{6y}{z}+\frac{10y}{z^2}+z+\frac{30}{z}+\frac{6z}{y}+\frac{30}{y}+\frac{10z}{y^2}+\frac{2y^2}{xz}+\frac{5y^2}{xz^2}+\frac{6y}{x}+\frac{20y}{xz}+\frac{6z}{x}+\frac{30}{x}+\frac{2z^2}{xy}+\frac{20z}{xy}+\frac{5z^2}{xy^2}+\frac{y^3}{x^2z^2}+\frac{5y^2}{x^2z}+\frac{10y}{x^2}+\frac{10z}{x^2}+\frac{5z^2}{x^2y}+\frac{z^3}{x^2y^2}$	4287: $\left(\frac{(xyz^2+xyz+1)^2}{x^2yz^3}, \frac{(xyz^2+xyz+1)^2}{xz}, \frac{(xyz^2+xyz+1)^2}{xz^2}\right)$

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Table 164 – continued from previous page

Node	Laurent polynomial	Mutations from Figure 164a
4318	$xy^2z^6+6xy^2z^5+15xy^2z^4+20xy^2z^3+15xy^2z^2+6xy^2z+xy^2+2xyz^3+6xyz^2+6xyz+2xy+x+6yz^4+30yz^3+60yz^2+60yz+30y+\frac{6y}{z}+6z+\frac{6}{z}+\frac{15z^2}{x}+\frac{60z}{x}+\frac{90}{x}+\frac{60}{xz}+\frac{15}{xz^2}+\frac{6}{xyz}+\frac{6}{xyz^2}+\frac{20}{x^2y}+\frac{60}{x^2yz}+\frac{60}{x^2yz^2}+\frac{20}{x^2yz^3}+\frac{2}{x^2y^2z^3}+\frac{15}{x^3y^2z^2}+\frac{30}{x^3y^2z^3}+\frac{15}{x^3y^2z^4}+\frac{6}{x^4y^3z^4}+\frac{6}{x^4y^3z^5}+\frac{1}{x^5y^4z^6}$	4287: $\left(\frac{(xyz^2+xyz+1)^3}{x^2yz^3}, \frac{1}{y(xyz^2+xyz+1)^3}, xyz^2\right)$

Bucket 165

Bucket 165 consists of a single Laurent polynomial:

$$f = xy^4 + 4xy^3z + 4xy^3 + 6xy^2z^2 + 12xy^2z + 6xy^2 + 4xyz^3 + 12xyz^2 + 12xyz + 4xy + xz^4 + 4xz^3 + 6xz^2 + 4xz + x + \frac{4y^2}{z} + 12y + \frac{12y}{z} + 12z + \frac{12}{z} + \frac{4z^2}{y} + \frac{12z}{y} + \frac{12}{y} + \frac{4}{yz} + \frac{6}{xz^2} + \frac{12}{xyz} + \frac{12}{xyz^2} + \frac{6}{xy^2} + \frac{12}{xy^2z} + \frac{6}{xy^2z^2} + \frac{4}{x^2y^2z^3} + \frac{4}{x^2y^3z^2} + \frac{4}{x^2y^3z^3} + \frac{1}{x^3y^4z^4}$$

The Newton polytope of f has reflexive ID 4312.