On some properties of Poisson (2-3)-algebras

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Let P be a vector space over a field F. Then P is called a *Poisson* (2-3)-*algebra*, if P has a binary operation $\cdot$ and ternary operation $[-,-,-]$ such that the product $\cdot$ forms a commutative associative algebra, the bracket $[-,-,-]$ forms a Lie 3-algebra, and $[-,-,-]$ acts as a derivation of the product $\cdot$, that is $\cdot$ and $[-,-,-]$ satisfy the Leibniz (2-3)-identity. In other words,

$$
\begin{gathered}
ab = ba, (ab)c = a(bc),\\
a(b+c) = ab + ac, (\lambda a)b = a(\lambda b) = \lambda(ab),\\
[a_1 + a_2, b, c] = [a_1, b, c] + [a_2, b, c],\\
[a, b_1 + b_2, c] = [a, b_1, c] + [a, b_2, c],\\
[a, b, c_1 + c_2] = [a, b, c_1] + [a, b, c_2],\\
[\lambda a, b, c] = [a, \lambda b, c] = [a, b, \lambda c] = \lambda[a, b, c],\\
[a_1, a_2, a_3] = 0 \text{ whenever } a_i = a_j \text{ for some } i \neq j, 1 \leqslant i, j \leqslant 3,\\
[[a_1, a_2, a_3], b, c] = [[a_1, b, c], a_2, a_3] + [a_1, [a_2, b, c], a_3] + [a_1, a_2, [a_3, b, c]],\\
[a_1 a_2, b, c] = a_2[a_1, b, c] + a_1[a_2, b, c]
\end{gathered}
$$

for all $a, a_1, a_2, a_3, b, b_1, b_2, c, c_1, c_2 \in P$, $\lambda \in F$.

The purpose of the talk is to show some properties of Poisson (2-3)-algebras, which are analogous to the results for Poisson algebras from the paper [1].

1. Kurdachenko L. A., Pypka A. A., Subbotin I. Ya. On extension of classical Baer results to Poisson algebras. Algebra Discrete Math., 2021, 31, No. 1, 84 – 108.