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## The Skitovich-Darmois Theorem for Locally Compact Abelian Group

The well-known Skitovich-Darmois theorem states: If  $\xi_j$ , j = 1, 2, ..., n,  $n \ge 2$ , are independent random variables, and  $\alpha_j$ ,  $\beta_j$  are nonzero constants, then the independence of linear statistics  $L_1 = \alpha_1\xi_1 + \cdots + \alpha_n\xi_n$  and  $L_2 = \beta_1\xi_1 + \cdots + \beta_n\xi_n$  implies that all random variables  $\xi_j$  are Gaussian. This theorem was generalized by Ghurye and Olkin for case where  $\xi_j$  are independent random vectors in the space  $\mathbf{R}^m$ , and  $\alpha_j$ ,  $\beta_j$  are non singular matrices. They proved that the independence of  $L_1$  and  $L_2$  implies that the random vectors  $\xi_j$  are Gaussian.

We will discuss generalizations of the Skitovich-Darmois theorem to the case where independent random variables take values in a locally compact Abelian group X and coefficients of linear statistics are topological automorphisms of X.

 Feldman Gennadiy. Functional Equations and Characterization Problems on Locally Compact Abelian Groups. EMS Tracts in Mathematics Vol. 5. – Zurich: European Mathematical Society, 2008.