According to the classical Skitovich-Darmois theorem the Gaussian distribution is characterized by the independence of two linear form ([2]). Heyde proved a closely related result where a condition of the independence of linear forms is replaced by the condition of the symmetry of one form given another ([1])

Large number of researches is devoted some analogs both the Skitovich-Darmois theorem and proved earlier the Bernstein theorem for different algebraic structures (see e.g. [3] where one can find some references).

Let X be a locally compact Abelian separable group, $\mathrm{Aut}(X)$ be the set of topological automorphisms of X, $\xi_j,\ j = 1, 2, ..., n,\ n \geq 2$ be independent random variables taking on values in X and with distributions μ_j. Consider $L_1 = \alpha_1\xi_1 + \cdots + \alpha_n\xi_n$ and $L_2 = \beta_1\xi_1 + \cdots + \beta_n\xi_n$, where $\alpha_j, \beta_j \in \mathrm{Aut}(X)$ such that $\beta_i\alpha_i^{-1} \pm \beta_j\alpha_j^{-1} \in \mathrm{Aut}(X)$ for all $i \neq j$ and assume that the conditional distribution of L_2 given L_1 is symmetric. In the talk we give a solution in the class of finite Abelian groups X the following

Problem. To give the complete description of distributions μ_j of independent random variables ξ_j taking on values in X such that the conditional distribution of L_2 given L_1 is symmetric.

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