

**LEXICOGRAPHIC REGULARIZATION AND DUALITY FOR IMPROPER
LINEAR PROGRAMMING PROBLEMS****L. D. Popov, V. D. Skarin**

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A new approach to the optimal lexicographic correction of improper linear programming problems is proposed. The approach is based on the multistep regularization of the classical Lagrange function with respect to primal and dual variables simultaneously. The regularized function can be used as a basis for generating new duality schemes for problems of this kind. Theorems on the convergence and numerical stability of the method are presented, and an informal interpretation of the obtained generalized solution is given.

Keywords: linear programming, duality, improper problems, generalized solutions, regularization, penalty methods.

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