

عنوان مقاله:

A new algorithm for solving linear programming problems with bipolar fuzzy relation equation constraints

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خلاصه مقاله:

This paper studies the linear optimization problem subject to a system of bipolar fuzzy relation equations with the max-product composition operator. Its feasible domain is briefly characterized by its lower and upper bound, and its consistency is considered. Also, some sufficient conditions are proposed to reduce the size of the search domain of the optimal solution to the problem. Under these conditions, some equations can be deleted to compute the minimum objective value. Some sufficient conditions are then proposed which under them, one of the optimal solutions of the problem is explicitly determined and the uniqueness conditions of the optimal solution are expressed. Moreover, a modified branch-and-bound method based on a value matrix is proposed to solve the reduced problem. A new algorithm is finally designed to solve the problem based on the conditions and modified branch-and-bound method. The algorithm is compared to the methods in other papers to show its efficiency.

کلمات کلیدی:

Bipolar Fuzzy Relation Equation, Linear Optimization, MaxProduct Composition, Modified Branch-and-Bound Method

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