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ON THE SOLUTION OF A SEPARABLE PRODUCTION PLANNING PROBLEM WITH BOUNDED VARIABLES

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Abstract

In this paper, we consider a convex separable production planning problem defined by a (strictly) convex separable objective function subject to a linear equality constraint, and bounded variables (box constraints, two-sided bounds on the variables). This problem is interesting from theoretical as well as from practical point of view because it arises in some mathematical optimization problems and in various practical applications. Necessary and sufficient condition is proved for a feasible solution to be an optimal solution to this problems. An efficient iterative polynomial algorithm for solving such problems is proposed and convergence of this algorithm is proved. Results of computational experiments and illustrative examples are also presented.

Key Words : *Convex programming, Separable programming, Production planning, Polynomial algorithms, Computational complexity.*
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