

A Tight Reformulation for the Simple Plant Location Problem

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In this paper, we present a new formulation for the simple plant location problem(SPLP). Although this new formulation has some redundant variables, i.e., it is an 'extended formulation' of the SPLP, it gives a better linear programming (LP) relaxation than the conventional formulations of the SPLP.

We will show that the projected feasible region of the LP relaxation of our formulation onto the original variable space satisfies a class of facetial inequalities of the SPLP polytope developed by Guignard.

Also is developed an efficient dual-based solution procedure for this new formulation, which is nothing but Erlenkotter's DUALOC with some additional calculation procedure.