

SELECTION OF CONSTRAINTS IN NON-NEGATIVE LINEAR PROGRAMMING PROBLEMS USING INTERCEPT MATRIXS

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ABSTRACT

Linear Programming is one of the most important techniques adopted in modeling and solving different practical optimization problems that arise in industry, commerce and management. While formulating a linear programming model, systems analysis and researchers often tend to include all possible constraints. Although some of them may not be binding at the optimal solution. The Accuracy of number of equations and variable needed to model real-life situations are significantly large, and the solution process could be time-consuming even solving with computers. Pre-processing is an important technique in the practice of linear programming problem. Since, the reduction of large scale problem can save significant amount of computational effort during the solution of a problem. Many researchers have proposed algorithms for selecting necessary constraints in linear programming models. This paper proposes a heuristic approach for selecting constraints, a prior to the start of the solution process using Intercept Matrix. Rather some of the earlier methods developed for selecting constraints are explained and an improved method is also suggested using Intercept Matrix. The developed algorithm is implemented and the computational results are also presented. It shows that the proposed method reflects a significant decrease in the computational effort and is one of the best alternative to select the necessary constraints prior to solve non-negative linear programming problem.

KEYWORDS: Constraint Selection, Cosine Simplex Algorithm, Intercept Matrix. , Largest Summation Rule.