

An Advanced Starting Basis for the Simplex Algorithm

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The computation of a starting basis for the simplex algorithm is of great importance. We propose six algorithms for constructing an initial basis using various ordering methods in order to generate a nearly-triangular and sparse initial basis. We give the initial bases as input to the CPLEX solver and compare the performance of the primal and dual simplex algorithm using the proposed algorithms against CPLEX advanced starting basis and crash procedures. The best algorithm results in 60% and 27% reduction of the execution time of the primal and the dual simplex algorithm, respectively.