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Adapting LP preprocessing to LFP problems

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Abstract

Preprocessing is very important for solving large optimization problems irrespectively of using interior point or simplex algorithm. Most professionally developed solvers automatically use preprocessing techniques to maintain numerical stability and improve performance. Even though computers have become even faster, the real life models have increased in size. The reason is part the complexity, part the model generators. The aim of the preprocessing techniques is to reduce the problem size and to discover redundancy and the unbounded or infeasible problems. In this paper we describe the main results of our investigations connected with preprocessing techniques in LFP. Our investigations are on the use of well-known preprocessing techniques of linear programming and adopting them to LFP problems. Some of them can be used in LFP without any transformation, but the others is necessary to be adapted. Sometimes this adaptation is not so obvious. Not only the preprocessing but also the postsolve techniques are different in nonlinear environment. The paper presents some preprocessing techniques with its postsolve operations based on [1], [2] and gives an overview its adaptation into LFP.

Keywords: Preprocessing

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