Applications of the Mixed Packing and Covering Problem

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Abstract

We present a new algorithm for approximately solving the so-called mixed packing and covering problem, which includes a large class of linear programs. Our algorithmic framework is based on the so-called Lagrangian decomposition technique and follows an iterative approach which makes it easy to implement. Furthermore, we discuss the application to the fractional Multicommodity Flow problem, which naturally models large-scale routing problems. As a side issue, we discuss other variations of Multicommodity Flow which can be solved with similar approaches.