Fülöp's equivalence between a linear bilevel programming problem and linear optimization over the efficient set revisited

Andreas Löhne

In the seminal paper by Fülöp [1] it was shown that a linear bilevel programming problem is equivalent to the problem to minimize a linear function over the set of efficient (or non-dominated or minimal) points of a multiple objective linear program. We discuss Fülöp's results and some extensions. In particular, we replace the multiple objective program by a vector linear program in order to can reduce the number of objectives by one. We further discuss the role of vector linear programming duality.

[1] J. Fülöp. On the equivalence between a linear bilevel programming problem and linear optimization over the efficient set. Technical report, Laboratory of Operations Research and Decision Systems, Computer and Automation Institute, Hungarian Academy of Sciences, Budapest, 1993. working paper 93-1.