

A DIRECT WAY TO OBTAIN STRONG DUALITY RESULTS
IN LINEAR SEMIDEFINITE AND LINEAR SEMI-INFINITE
PROGRAMMING

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Abstract. In linear programming it is known that an appropriate non-homogeneous Farkas Lemma leads to a short proof of the strong duality results for a pair of primal and dual programs. By using a corresponding generalized Farkas lemma we give a similar proof of the strong duality results for semidefinite programs under constraint qualifications. The proof also provides optimality conditions. The same approach leads to corresponding results for linear semi-infinite programs. For completeness, the proofs for linear programs and the proofs of all auxiliary lemmata for the semidefinite case are included.

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Key words. Linear programming, semidefinite programming, semi-infinite programming, duality.

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