عنوان مقاله:
The strict complementarity in linear fractional optimization

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خلاصه مقاله:
As an important duality result in linear optimization, the Goldman–Tucker theorem establishes strict complementarity between a pair of primal and dual linear programs. Our study extends this result into the framework of linear fractional optimization. Associated with a linear fractional program, a dual program can be defined as the dual of the equivalent linear program obtained from applying the Charnes–Cooper transformation to the given program. Based on this definition, we propose new criteria for primal and dual optimality by showing that the primal and dual optimal sets can be equivalently modeled as the optimal sets of a pair of primal and dual linear programs. Then, we define the concept of strict complementarity and establish the existence of at least one, called strict complementary, pair of primal and dual optimal solutions such that in every pair of comple mentary variables, exactly one variable is positive and the other is zero. We geometrically interpret the strict complementarity in terms of the relative interiors of two sets that represent the primal and dual optimal setsin higher dimensions. Finally, using this interpretation, we develop two approaches for finding a strict complementary solution in linear fractional optimization. We illustrate our results with .two numerical examples

کلمات کلیدی:
Linear fractional optimization, Charnes–Cooper transformation, Duality, Strict complementarity