Duality for a Non-differentiable Multi-objective Fractional Programming Problem Using G-Invexity

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Abstract

Convexity and generalized convexity have been playing a central role in developing optimality and duality results for multi-objective programming problems which are mathematical models for most of the real world problems occurring in the fields of engineering, economics, finance, game theory etc. Several classes of (generalized) convex functions have been defined and studied for the purpose of weakening the limitations of convexity in mathematical programming. In this article, we have formulated primal-dual nondifferentiable symmetric multiobjective fractional programming problem over arbitrary cones and established weak, strong and converse duality relations under G-invexity assumptions. Further, it has been shown that the results established in the paper generalize some of the known results exist in the literature.

Keywords
Multiobjective fractional programming, Symmetric duality, Support function, Generalized convexity, G-invexity.