

Abstract

In this article generalization of some MINLP algorithms to cover convex nonsmooth problems is studied. In the extended cutting plane method, gradients are replaced by the subgradients of the convex function and the resulting algorithm shall be proven to converge to a global optimum. It is shown through a counterexample that this type of generalization is insufficient with certain versions of the outer approximation algorithm. However, with some modifications to the OA method a special type of nonsmooth functions for which the subdifferential at any point is a convex combination of a finite number of subgradients at the point can be considered.

Keywords: Convex nonsmooth MINLP; Convex programming; Extended cutting plane algorithm; MINLP; Nonsmooth optimization; Outer approximation algorithm; Subgradient

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