

An affordable general-purpose Inexact Restoration method ^{*}

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Abstract

Inexact Restoration methods are optimization methods that address feasibility and optimality in different phases of each iteration. In 2005 Birgin and Martínez propose a method, within the Inexact Restoration framework, which has good local convergence properties. However the authors did not prove that the method is well defined, they only suggest an alternative to attempt to complete an iteration of the method. Our contribution is to present sufficient conditions to ensure that the iteration is well defined and to show a Newtonian way to complete the iteration under these assumptions. We also use a Perturbed SQP framework to improve the convergence rate results and we present some numerical results for a local, a semi-global and a global versions of the algorithm.

Key words: Nonlinear Programming, Inexact Restoration, Local Convergence, Perturbed SQP, Numerical Experiments.

AMS Subject Classification: 90C30, 49K99, 65K05.

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