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The combined methods of centers with using reduced gradient for solving nonlinear optimization problem

We consider the nonlinear programming problem with inequality constraints. All problem functions are supposed to be sufficiently smooth. The united approach based on the idea of the "active" constraints linearization and on the using of the "reduced" direction for moving in the carrent iteration point is developed for constructing the methods of solving this problem. The methods of centers , differentiable, nondifferentiable and barrier cost functions has been realized on the frame of this approach. We consider in the report combined methods of centers: methods of external centers with any iteration points at first phase and methods of internal centers with allowable iteration points at second phase in the vicinity of solution. This work was supported partially of RFBR (97-01-00680). Reference: Izhutkin, V. S., Blinov, A. V. The Reduced Direction Methods (Like Centers) Based on the External Distance Function for Nonlinear Extremal Problems (1998). Operations Research Proceedings 1997. Springer - Verlag. Berlin, Heidelberg.