

# Generalized Concavity and Global Optimization

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We suggest an approach to solve special classes of multi-extremal problems—optimization the monotone combination (e.g., sum, product) of several functions, under the that there are known the effective algorithms to optimize each of this item (e.g., each of these functions has some properties of generalized concavity.) The algorithm proposed is iterative. It realizes the idea of the branch-and-bound method, consists in successive correcting the bounds of optimal value of objective functions. Moreover we use the methodology of multi-objective optimization, studying the image of Pareto boundary in the image space. In each iteration, the total area of the region, guaranteed to contain the image optimal point, decreases at least twice. We discuss the applicability to marketing models: optimization of communication expenditure [1] and the effectiveness of advertising [2], pricing [3]; to monopolistic competition models: retailing [4], investments in R&D [5], market distortion [6], and international trade [7].

## References

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