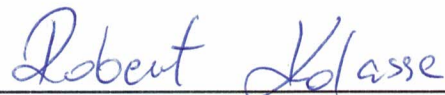


Robert Kolassa

Abstract of the doctoral dissertation entitled  
Application of pairs of convex sets to minimal representations  
of differences of convex functions in the sense of Zalgaller

The thesis presents a new approach to finding the minimal representation of the difference of convex functions (dc-functions) in the sense of Zalgaller. The results of research by Palaschke and Urbański on minimal quasidifferentials of Demyanov and Rubinov are applied. In particular, the notion of a maximal pair of convex sets with a common recession cone is introduced and related to a minimal representation of a given dc-function. Minkowski duality is applied for this purpose. Moreover, the properties of the Minkowski addition and subtraction in a family of closed convex sets with a common recession cone are investigated. As a result, an algorithm for finding the maximum pair equivalent to a given pair is presented.

The minimal representation of a dc-function, which is a restriction of the difference of sublinear functions (ds-functions) to a convex compact set, is also examined. The concept of an L-minimal pair is introduced, where L is a convex compact set. It is showed that the minimal representation in the sense of Zalgaller of the restricted ds-function corresponds to the L-minimal pair of compact convex sets. The existence and uniqueness of an L-minimal pair equivalent to a given pair is proved. The new approach presented in the dissertation may be helpful in answering the questions posed by Zalgaller.



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