

© 2010 Heldermann Verlag
Journal of Convex Analysis 17 (2010) 651–658

M. Möller

School of Mathematics, University of the Witwatersrand, Wits 2050, South Africa
Manfred.Moller@wits.ac.za

T. M. J. Nthebe

School of Mathematics, University of the Witwatersrand, Wits 2050, South Africa
Thabang.Nthebe@wits.ac.za

On Maximal Domains for \mathcal{C} -Convex Functions and Convex Extensions

Let f be a real valued function with the domain $\text{dom}(f)$ in some vector space X and let \mathcal{C} be the collection of convex subsets of X . The following two questions are investigated; 1. Do there exist maximal convex restrictions g of f with $\text{dom}(g) \in \mathcal{C}$? 2. If f is convex with $\text{dom}(f) \in \mathcal{C}$, do there exist maximal convex extension g of f with $\text{dom}(g) \in \mathcal{C}$? We will show that the answer to both questions is positive under a certain condition on \mathcal{C} .

Keywords: Convex extension, \mathcal{C} -convex, maximal set, CUP.

MSC: 32E20, 35E10, 26A51, 46A55, 46S40, 52A41