

Epi-Distance Convergence of Parametrised Sums of Convex Functions in Non-Reflexive Spaces

A. Eberhard and R. Wenczel

Department of Mathematics, Royal Melbourne University of Technology, Melbourne 3001, Australia,
andy.eb@rmit.edu.au



Abstract: A weakened set of conditions is established for the epi-distance convergence of a sum $\{f_v + g_v\}_{v \in W}$ of parametrised closed convex functions $\{f_v\}_{v \in W}$ and $\{g_v\}_{v \in W}$ for v to w , on an arbitrary Banach space. They are as follows: (1) $0 \in \operatorname{sqr}(\operatorname{dom} f_w - \operatorname{dom} g_w)$; and (2) $X_w := \operatorname{cone}(\operatorname{dom} f_w - \operatorname{dom} g_w)$ has closed algebraic complement Y_w ; and (3) $X_v \cap Y_w = \{0\}$ for all v near w , (where $X_v := \overline{\operatorname{span}}(\operatorname{dom} f_v - \operatorname{dom} g_v)$). These are motivated by similar interiority conditions found in Fenchel duality theory. Our results are then used to investigate saddle-point convergence in Young-Fenchel duality in which both functions vary in a very general fashion.

Full text of the article:

- [Compressed DVI file](#) (53 kilobytes)
- [Compressed PostScript file](#) (142 kilobytes)
- [PDF file](#) (295 kilobytes)

[\[Previous Article\]](#) [\[Next Article\]](#) [\[Contents of this Number\]](#)
