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functions*. Preliminary report.

Associated to a lower semicontinuous function, one can define its proximal mapping and furthest mapping. The function is called Chebyshev (Klee) if its proximal mapping (furthest mapping) is single-valued everywhere. We show that the function is $1/\mu$ -hypoconvex if its proximal mapping P_μ is single-valued. When the function is bounded below, and P_μ is single-valued for every $\mu > 0$, the function must be convex. Similarly, we show that the function is $1/\mu$ -strongly convex if the furthest mapping $Q_\mu f$ is single-valued. When the function is the indicator function of a set, this recovers the well-known Chebyshev problem and Klee problem in R^n .

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