

On Bregman-type distances for convex functions and maximally monotone operators

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Abstract

Given two point to set operators, one of which is maximally monotone, we introduce a new distance in their graphs. This new concept reduces to the classical Bregman distance when both operators are the gradient of a convex function. We study the properties of this new distance and establish its continuity properties. We derive its formula for some particular cases, including the case in which both operators are linear monotone and continuous. We also characterize all bi-functions D for which there exists a convex function h such that D is the Bregman distance induced by h .