ON A SUFFICIENT CONDITION FOR EQUALITY OF TWO MAXIMAL MONOTONE OPERATORS

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We establish minimal conditions under which two maximal monotone operators coincide. Our first result is inspired by an analogous result for subdifferentials of convex functions. In particular, we prove that two maximal monotone operators T, S which share the same convex-like domain D coincide whenever $T(x) \cap S(x) \neq \emptyset$; for every $x \in D$. We extend our result to the setting of enlargements of maximal monotone operators. More precisely, we prove that two operators coincide as long as the enlargements have nonempty intersection at each point of their common domain, the latter set assumed to be convex-like and open. We then use this result to obtain new facts for convex functions : we show that the difference of two convex functions whose subdifferentials have a common open convex-like domain is constant if and only if their ε-subdifferentials intersect at every point of that domain. This is a joint work with Juan Enrique Martínez-Legaz and Marco Rocco.