

On Linear Openness at a Point

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There are two basic ways of weakening the well-known metric regularity property by fixing one of the points involved in its definition. The first resulting property is called metric subregularity and has attracted a lot of attention during the last decades. On the other hand, the latter property which we call semiregularity can be found under several names and the corresponding results are scattered in the literature. Semiregularity is equivalent to the so-called openness with a linear rate *at* the reference point. We present primal conditions, in the spirit of the well-known Ioffe's criterion for metric regularity, guaranteeing that this (weaker) property holds for a generally set-valued mapping between (not necessarily) metric spaces. The main tool, used in the proof, is the Ekeland's variational principle for extended real-valued functions defined on the (extended quasi) metric space.