Convergence of Unbounded Multivalued Supermartingales in the Mosco and Slice Topologies

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Abstract: Our starting point is the Mosco-convergence result due to Hess ([18]) for integrable multivalued supermartingales whose values may be unbounded, but are majorized by a w-ball-compact-valued function. It is shown that the convergence takes place also in the slice topology. In the case when both the underlying space X and its dual X^* have the Radon-Nikodym property a weaker compactness assumption guarantees convergence of the multivalued supermartingales in the slice topology. This result implies convergence in the Mosco topology and gives an analogue of Hess' result in the case when X and X^* have the RNP. Finally the results are restated in terms of normal integrands.

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