Comparing fuzzy measures through their Möbius transform

Fuzzy measures and integrals have been used in multiple applications in the area of information fusion. They can be used to aggregate information when information sources are not independent. Fuzzy measures are used to represent our background knowledge on the information sources. In particular, they can be used to model the dependencies between the variables. One of the applications of Choquet integrals is for defining distances between objects. In this case, we can use the Choquet integral as an alternative to e.g. weighted Euclidean distance. In this paper we discuss the problem of comparing pairs of fuzzy measures. We introduce two distances inspired in the Hellinger distance and use them to compare the measures for some different Choquet integral-based distances. Fuzzy measures are also known by non-additive measures, capacities, and monotonic games. Monotonic games are used in game theory. Because of that the results presented here can be used in other contexts as in game theory.

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