An Alternative Approach to Rough Sets

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Abstract: From the classical point of view, as conceived by Z. Pawlak, rough sets are generated by classical subsets of a basic space and by an indiscernibility relation defined on this space; this relation expresses limited abilities to discern the elements which are members of a given classical set from the other ones. In this paper an alternative approach is suggested and investigated, when the possibility to decide about the validity of a membership predicate for a given element of the basic space is qualitatively and quantitatively classified and only the subsets for which this degree of decidability is below a given threshold value are taken into consideration. Some special quantification relations as well as relations between rough sets under the alternative approach, Dempster–Shafer theory and fuzzy sets are briefly discussed.