

NORMALIZATION OF FUZZY AND INTUITIONISTIC FUZZY RELATIONAL DATABASE INTO THIRD NORMAL FORM

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Abstract

There have been many extensions of Zadeh's [1] Fuzzy set but Intuitionistic fuzzy set [2-5] has been found very useful to deal with vague information. Intuitionistic fuzzy sets can be useful in situations when description of a problem by a (fuzzy) linguistic variable, given in terms of a membership function only, seems insufficient to give best result. For example medical diagnosis [6], sales analysis, Multi criteria decision making [7-8], Expert system, etc. There is a fair chance of the existence of a non-null hesitation part at each moment of evaluation of an unknown object. To be more precise - intuitionistic fuzzy sets let us understand non null hesitation part. Considering Intuitionistic set as an useful issue Biswas and Roy [9-10] introduced the concept of Intuitionistic fuzzy databases. As we all know database suffers from redundancy and inconsistency problems. These problem may be reduce if we follow normalization process for designing a relational database. In this paper we have used Intuitionistic fuzzy IF set (IFS) to normalize the relation. In this paper we have proposed a method to normalize an IF relational database into intuitionistic fuzzy third normal form where as Intuitionistic Fuzzy 1 Normal Form [11-13] and Intuitionistic Fuzzy 2 Normal Form have been introduced earlier. We also define an approach when the relations are Fuzzy in nature.

Key Words : Intuitionistic fuzzy sets, Intuitionistic fuzzy relation, Intuitionistic fuzzy functional dependency, Intuitionistic fuzzy attribute, pq-keys, Transitivity, IF2NF, IF3NF.