An Index for Ranking Fuzzy Numbers by Belief Feature

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Abstract

The aim of this paper is to explore the belief feature in ranking fuzzy algorithm, because it is a characteristic of great importance in fuzzy membership function. Currently, many algorithms adopt the concept of α-*cuts* to solve ranking fuzzy numbers. The calculating procedures have been largely simplified. However, these algorithms do not take the belief into account, so their fuzzy ranking theories cannot fully demonstrate the character of fuzzy membership function. In this paper, the information provided by α-*cuts* is discussed in the viewpoint of belief. At the same time, α-*cuts* fuzzy operation and belief feature are integrated to investigate the fuzzy ranking algorithm. Therefore, the algorithm presented in this paper can fully show the membership and characteristics of original fuzzy function.

Keywords: Fuzzy Ranking, Area Measurement, Index of Difference, Belief Feature.