COMPARISON OF FUZZY NUMBERS

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The problem of ordering fuzzy numbers is studied. The results from [1] are extended on fuzzy numbers with integrable shape functions. Fuzzy numbers are represented as points in the six-dimensional space $R^6 \subset \mathbb{R}^6$.

$$R^6 = \{(x_1, x_2, x_3, x_4, x_5, x_6) : x_1 \leq x_5 \leq x_2 \leq x_3 \leq x_6 \leq x_4\}$$

Every fuzzy number A can be represented with six real numbers $(a_1, a_2, a_3, a_4, a_5, a_6)$, where a_1, a_2, a_3, a_4 are borders of fuzzy number A and $a_5 = a_2 - \int_{a_1}^{a_2} L(x)dx$, $a_6 = a_3 + \int_{a_3}^{a_4} R(x)dx$. The distance d of fuzzy numbers is introduced. The distance induce partial ordering of fuzzy numbers. The ordering of α-level and the ordering on α-level are introduced. Some properties of this orderings are studied.

References

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