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Calculations of graded ill-known sets. (English) Zbl 1296.03030
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Summary: To represent a set whose members are known partially, the graded ill-known set is proposed. In this paper, we investigate calculations of function values of graded ill-known sets. Because a graded ill-known set is characterized by a possibility distribution in the power set, the calculations of function values of graded ill-known sets are based on the extension principle but generally complex. To reduce the complexity, lower and upper approximations of a given graded ill-known set are used at the expense of precision. We give a necessary and sufficient condition that lower and upper approximations of function values of graded ill-known sets are obtained as function values of lower and upper approximations of graded ill-known sets.

MSC:

03E72 Theory of fuzzy sets, etc.

68T37 Reasoning under uncertainty in the context of artificial intelligence

Keywords:

ill-known set; lower approximation; upper approximation

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