Title: Proaftn

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Proaftn is a fuzzy classification method that belongs to the class of supervised learning algorithms . The acronym Proaftn stands for: (PROcédure d'Affectation Floue pour la problématique du Tri Nominal), which means in English: Fuzzy Assignment Procedure for Nominal Sorting .

The method enables to determine the fuzzy indifference relations by generalizing the indices (concordance and discordance) used in the ELECTRE III method. [1] To determine the fuzzy indifference relations, PROAFTN uses the general scheme of the discretization technique described in, [2] that establishes a set of pre-classified cases called a training set.

To resolve the classification problems, Proaftn proceeds by the following stages: [3]

Stage 1. Modeling of classes: In this stage, the prototypes of the classes are conceived using the two following steps:

Step 1. Structuring: The prototypes and their parameters (thresholds, weights, etc.) are established using the available knowledge given by the expert.

Step 2. Validation: We use one of the two following techniques in order to validate or adjust the parameters obtained in the first step through the assignment examples known as a training set.

Direct technique: It consists in adjusting the parameters through the training set and with the expert intervention.

Indirect technique: It consists in fitting the parameters without the expert intervention as used in machine learning approaches. [4] [5]

In multicriteria classification problem, the indirect technique is known as preference disaggregation analysis . [6] This technique requires less cognitive effort than the former technique; it uses an automatic method to determine the optimal parameters, which minimize the classification errors.

Furthermore, several heuristics and metaheuristics were used to learn the multicriteria classification method Proaftn. [7] [8]

Stage 2. Assignment: After conceiving the prototypes, Proaftn proceeds to assign the new objects to specific classes.

References

External links

Site dedicated to the sorting problematic of MCDA