

Preferential fuzzy sets¹

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Abstract of contributed talk. In many web applications the order of displaying results matters. We understand this as a challenge. We restrict ourselves to e-shops. Starting from current state of filtering and ordering of results, we conjecture that fuzzy sets filters and multicriterial ordering can improve users' experience. So a fuzzy membership degree is interpreted as a degree of preference.

Motivation for our model starts at Decathlon race evaluation. We mention also IBM Almaden Garlic project which may be affected DB2 functionality – some aspects of fuzzy technology were adopted – yet with substantial extension – the optimal threshold algorithm.

We focus on retail–user-item/service problem for multiuser systems. For learning users' preferences – we observe that users are not necessarily instances of same distribution, behavior. This makes use of classical inductive methods more complicated. Another difference is necessity to use order sensitive metrics like order concordance at top-k, 1st hit, ... We mention results from [2] where a method for tuning parametric families of t-conorms for aggregating user's attribute preferences was described and used in experiments on real production data in off-line experiments. We mention some public international competitions where a fuzzy set (in form of users' rating) has to be learned.

We present our formal rule based model using solely modus ponens (no axiomatization is needed).

[1] R. Fagin, A. Lotem, M. Naor, Optimal aggregation algorithms for middleware. JCSS 66(4), 2003, pp. 614--656. (Preliminary version ACM PODS 2001)

[2] L. Peska, A. Eckhardt, P. Vojtas. Preferential Interpretation of Fuzzy Sets in Recommendation with Real E-shop Data Experiments, Archives for the Philosophy and History of Soft Computing No 2 (2015) - <http://aphsc.org/index.php/aphsc/article/view/32/23>

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