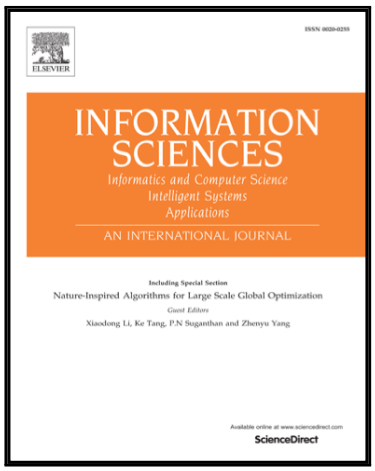
Accepted Manuscript



Group consistency and group decision making under uncertain probabilistic hesitant fuzzy preference environment

Wei Zhou , Zeshui Xu

PII: S0020-0255(16)31537-7
DOI: 10.1016/j.ins.2017.06.004
Reference: INS 12926

To appear in: *Information Sciences*

Received date: 5 November 2016
Revised date: 4 June 2017
Accepted date: 6 June 2017

Please cite this article as: Wei Zhou , Zeshui Xu , Group consistency and group decision making under uncertain probabilistic hesitant fuzzy preference environment, *Information Sciences* (2017), doi: 10.1016/j.ins.2017.06.004

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

The revised manuscript (#INS-2016-649-R4):

Group consistency and group decision making under uncertain probabilistic hesitant fuzzy preference environment

Wei Zhou[*ab], Zeshui Xu[a]

[a] *Business School, Sichuan University, Chengdu 610064, P. R. China;*

[b] *School of Finance, Yunnan University of Finance and Economics, Kunming, 650221, P.R. China*

Abstract:

With regard to element uncertainty in a hesitant fuzzy element (HFE), the probabilistic hesitant fuzzy element (PHFE) was developed. It has been noted that the occurrence probabilities of elements in PHFE are difficult to obtain accurately and sufficiently through subjective evaluation. Therefore, in this study, we propose the uncertain probabilistic hesitant fuzzy element (UPHFE), a generalized fuzzy number, which includes four types of HFEs. Compared with other fuzzy numbers, subjective preference information can be described more properly by the UPHFE. Furthermore, the UPHFE is extended to the uncertain probabilistic hesitant fuzzy preference relations (UPHFPRs). Besides, investigations about the expected consistency, acceptable expected consistency, probability-obtaining approach, and consistency-improving iterative algorithm for reasonable application of UPHFPRs are illustrated respectively. Then, we introduce the UPHFPRs and these methods into a group decision-making process, for which two operators are proposed to aggregate the UPHFPRs and ensure that the aggregated preference relations can remain UPHFPRs. Because the aggregated UPHFPRs may be inconsistent, we further design an acceptable group consistency test. Subsequently, we summarize the group decision-making process under the UPHFPR environment. Finally, an example that selects the optimal objective from four newly listed stocks on the Growth Enterprises Market board in China is provided to demonstrate the proposed approaches.

Keywords: Uncertain probabilistic hesitant fuzzy preference relations; expected consistency; consistency-improving iterative algorithm; group consistency; group decision making.

[*] Corresponding author. *E-mail:* zw453@163.com

Download English Version:

https://daneshyari.com/en/article/4944266

Download Persian Version:

https://daneshyari.com/article/4944266

Daneshyari.com