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On weighted possibilistic mean and variance of fuzzy numbers. (English) Zbl 1022.94032
Fuzzy Sets Syst. 136, No. 3, 363-374 (2003).

Summary: *D. Dubois* and *H. Prade* [ibid. 24, 279–300 (1987; [Zbl 0634.94026](#))] defined an interval-valued expectation of fuzzy numbers, viewing them as consonant random sets. *C. Carlsson* and *R. Fullér* [ibid. 122, 315–326 (2001; [Zbl 1016.94047](#))] defined an interval-valued mean value of fuzzy numbers, viewing them as possibility distributions. In this paper, we introduce the notion of weighted interval-valued possibilistic mean value of fuzzy numbers and investigate its relationship to the interval-valued probabilistic mean. We also introduce the notions of the crisp weighted possibilistic mean value, variance and covariance of fuzzy numbers, which are consistent with the extension principle. Furthermore, we show that the weighted variance of a linear combination of fuzzy numbers can be computed in a similar manner as in probability theory.

MSC:

- [94D05](#) Fuzzy sets and logic (in connection with information, communication, or circuits theory)
- [03E72](#) Theory of fuzzy sets, etc.
- [94A17](#) Measures of information, entropy

Cited in **7** Reviews
Cited in **62** Documents

Keywords:

[fuzzy number](#); [possibilistic mean value](#); [possibilistic variance](#)

Full Text: [DOI](#)

References:

- [1] Carlsson, C.; Fullér, R., On possibilistic Mean value and variance of fuzzy numbers, Fuzzy sets and systems, 122, 315-326, (2001) · [Zbl 1016.94047](#)
- [2] Chanas, S.; Nowakowski, M., Single value simulation of fuzzy variable, Fuzzy sets and systems, 25, 43-57, (1988) · [Zbl 0633.65144](#)
- [3] Delgado, M.; Vila, M.A.; Woxman, W., On a canonical representation of fuzzy numbers, Fuzzy sets and systems, 93, 125-135, (1998) · [Zbl 0916.04004](#)
- [4] Dubois, D.; Prade, H., The Mean value of a fuzzy number, Fuzzy sets and systems, 24, 279-300, (1987) · [Zbl 0634.94026](#)
- [5] Goetschel, R.; Voxman, W., Elementary fuzzy calculus, Fuzzy sets and systems, 18, 31-43, (1986) · [Zbl 0626.26014](#)
- [6] Heilpern, S., The expected value of a fuzzy number, Fuzzy sets and systems, 47, 81-86, (1992) · [Zbl 0755.60004](#)

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