

**De Baets, B.; Mareš, M.; Mesiar, R.**

**$\mathcal{T}$ -partitions of the real line generated by idempotent shapes.** (English) Zbl 0919.04004  
Fuzzy Sets Syst. 91, No. 2, 177-184 (1997).

Summary: The idea of generating fuzzy numbers as equivalence classes of particular  $\mathcal{T}$ -equivalences on the real line  $\mathbb{R}$  is fully exploited. Scales (or generators) are used to define certain (pseudo-)metrics on  $\mathbb{R}$ . By means of a shape (function), these (pseudo-)metrics are then transformed into binary fuzzy relations on  $\mathbb{R}$ . Shapes leading to  $\mathcal{T}$ -equivalences, and hence to a class of fuzzy numbers forming a  $\mathcal{T}$ -partition of  $\mathbb{R}$ , are completely characterized in the case of a continuous generator. This characterization problem is shown to be closely related to determining the idempotents w.r.t. the  $\mathcal{T}$ -addition of fuzzy numbers.

Reviewer: [Reviewer \(Berlin\)](#)

**MSC:**

03E72 Theory of fuzzy sets, etc.

Cited in 7 Documents

**Keywords:**

$\mathcal{T}$ -idempotent; scale; t-norm; fuzzy numbers; equivalence classes;  $\mathcal{T}$ -equivalences on the real line; generators; shape; fuzzy relations;  $\mathcal{T}$ -addition

**Full Text:** [DOI](#)

**References:**

- [1] B. De Baets, R. Mesiar,  $\mathcal{T}$ -partitions, Fuzzy Sets and Systems, to appear.
- [2] B. De Baets, R. Mesiar, Pseudo-metrics and  $\mathcal{T}$ -equivalences, J. Fuzzy Math., to appear.
- [3] B. De Baets, R. Mesiar, Metrics and  $\mathcal{T}$ -equalities, J. Math. Anal. Appl., submitted.
- [4] Dubois, D.; Prade, H., Fuzzy numbers: an overview, (), 3-39
- [5] Höhle, U., Fuzzy equalities and indistinguishability, (), 358-363, Aachen, Germany, September 1993
- [6] Jacas, J.; Recasens, J., Fuzzy numbers and equality relations, (), 1298-1301
- [7] Klawonn, F.; Kruse, R., From fuzzy sets to indistinguishability and back, (), A57-A59
- [8] E.-P. Klement, R. Mesiar, E. Pap, Triangular norms, in preparation. · [Zbl 0972.03002](#)
- [9] Mareš, M., Computation over fuzzy quantities, (1994), CRC Press Boca Raton · [Zbl 0859.94035](#)
- [10] Mareš, M.; Mesiar, R., Processing of sources of fuzzy quantities, (), 359-363, Granada, Spain, July 1996
- [11] Mareš, M.; Mesiar, R., Composition of shape generators, Acta Mathematica et informatica universitatis ostraviensis, 4, 37-46, (1996) · [Zbl 0870.04003](#)
- [12] A. Marková, Idempotents of the  $\mathcal{T}$ -addition of fuzzy numbers Tatra Mountains Math. Publ., to appear.
- [13] A. Marková-Stupňanová, Idempotents of the addition of fuzzy intervals based on a continuous t-norm, Fuzzy Sets and Systems, to appear.
- [14] Ruspini, E., A new approach to clustering, Inform. control, 15, 22-32, (1969) · [Zbl 0192.57101](#)
- [15] Schweizer, B.; Sklar, A., Probabilistic metric spaces, (1983), North-Holland New York · [Zbl 0546.60010](#)
- [16] Trillas, E.; Valverde, L., An inquiry into indistinguishability operators, (), 231-256 · [Zbl 0564.03027](#)
- [17] Zadeh, L., Similarity relations and fuzzy orderings, Inform. sci., 3, 177-200, (1971) · [Zbl 0218.02058](#)

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