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On witnessed models in fuzzy logic. II. (English) Zbl 1126.03031

Math. Log. Q. 53, No. 6, 610-615 (2007).

Summary: First the expansion of the Łukasiewicz (propositional and predicated) logic by the unary connectives of dividing by any natural number (rational Łukasiewicz logic) is studied; it is shown that in the predicate case the expansion is conservative w.r.t. witnessed standard 1-tautologies. This result is used to prove that the set of witnessed standard 1-tautologies of the predicate product logic is Π_2 -hard.

For Part I see *ibid.* 53, No. 1, 66–77 (2007; [Zbl 1110.03013](#)).

MSC:

03B52 Fuzzy logic; logic of vagueness

03B50 Many-valued logic

03D35 Undecidability and degrees of sets of sentences

Cited in **1** Review
Cited in **6** Documents

Keywords:

mathematical fuzzy logic; rational Łukasiewicz logic; product logic; witnessed models; arithmetical complexity

Full Text: [DOI](#)

References:

- [1] Gerla, Neural Network World 6 pp 579– (2001)
- [2] Metamathematics of Fuzzy Logic (Kluwer, 1998).
- [3] Hájek, Math. Logic Quart. 53 pp 66– (2007)
- [4] and , Triangular norm based predicate fuzzy logics. To appear in "Proceedings of Linz Seminar 2005".
- [5] Hájek, J. Symbolic Logic 71 pp 863– (2006)
- [6] Hájek, Fuzzy sets and systems 154 pp 1– (2005)

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