

On Hájek's (half-)forgotten treasures

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Petr Hájek was the founder and main developer of Mathematical Fuzzy Logic (MFL). In his 1998 book [1] or in early MFL papers he opened numerous lines of research. In the following years he and his colleagues deeply studied many of these lines. In this talk we survey some of his ideas which perhaps have not received as much attention as they deserve, but have been recently revived and are being currently developed by his disciples and friends.

We will focus on logical models of reasoning with vagueness and uncertainty, in particular on various forms of propositional modal logics (with two-layer formalism, S5-like modalities, indexed modalities, etc.), fragments of first-order systems (monadic and description logics), theories in full first-order logics (lattice-valued set theory, Cantor-Lukasiewicz set theory, weak fuzzy arithmetics) and finally expansions of the usual first-order fuzzy logics with generalized quantifiers.

References

- [1] P. Hájek. *Metamathematics of Fuzzy Logic*, volume 4 of *Trends in Logic*. Kluwer, Dordrecht, 1998.