

## **On witnessed models in fuzzy predicate logics.**

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A model is witnessed if the truth value of each universally quantified formula is the minimum (not only infimum) of the values of its instances and analogously for existentially quantified formula and maximum (not only supremum). Witnessed models have different properties in different logics, e.g. in Łukasiewicz logic (and only in it) each model can be elementarily embedded into a witnessed model. Results (including several results on arithmetical complexity of important sets of witnessed models) are obtained for Łukasiewicz, Gödel and product logic, for logics of composed continuous t-norms beginning by Łukasiewicz component and for logics of remaining continuous t-norms (having Gödel negation).