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$t$ truth degree and properties of Goguen $n$-valued propositional logic system by adding new operators. (Chinese. English summary) [Zbl 1488.03002]

Summary: In the $n$-valued Goguen propositional logic system, two kinds of operators, involution negation $\sim$ and $\Delta$ are added, and the system is denoted as Goguen$^{\sim, \Delta}$. The concept of $t$-truth degree is established in this system. Based on this truth degree, the $t$-similarity degree and $t$-pseudo-metric between propositions are given ($t$ takes $\sim, \Delta$). The MP rule, HS rule and operational properties of $t$-truth degree are proved. Then, on the basis of proving $t$-pseudo-metric, metric space is established. It is proved that the operators $\to$ and $\lor$ are continuous with respect to pseudo distance $d_n$ in logical metric space $(F(S), d_n)$.

MSC:

03B50 Many-valued logic

Keywords:
Goguen propositional logic system; $t$-truth degree; $t$-similarity degree; $t$-pseudo-metric; continuity