Tense Nelson algebras

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In [4], we introduce the variety of tense Nelson algebras as a structure $(\mathcal{A}, G, H)$ where $\mathcal{A} = \langle A, \vee, \wedge, \to, \sim, 0, 1\rangle$ is a Nelson algebra and G, H are two unary operators on A which satisfy the following properties:

(T1) $G(1) = 1$, $H(1) = 1$,

(T2) $G(x \wedge y) = G(x) \wedge G(y)$, $H(x \wedge y) = H(x) \wedge H(y)$,

(T3) $x \leq GP(x)$, $x \leq HF(x)$,

(T4) $G(x \to y) \leq G(x) \to G(y)$, $H(x \to y) \leq H(x) \to H(y)$,

(T5) $G(x \to y) \leq F(x) \to F(y)$, $H(x \to y) \leq P(x) \to P(y)$,

where $P(x) = \sim H(\sim x)$ and $F(x) = \sim G(\sim x)$,

In this paper we show the relationship between IKt-algebras [1,2,3] and tense Nelson algebras. Using it, we characterize the lattice of congruences of tense Nelson algebras through some of its deductive systems. Also we use this to find the subdirectly irreducible tense Nelson algebras and particularly the simple tense Nelson algebras. Finally, we extend the Vakarelov's construction for Nelson algebras [5] to the case of tense Nelson algebras. In addition we give some examples of this construction.

Referencias

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