A TOPOLOGICAL APPROACH TO TENSE $n \times m$-VALUED ŁUKASIEWICZ–MOISIL ALGEBRAS

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In 1975, Suchoń ([9]) defined matrix Łukasiewicz algebras so generalizing n-valued Łukasiewicz algebras without negation ([6]). In 2000, A. V. Figallo and C. Sanza ([4]) introduced $n \times m$-valued Łukasiewicz algebras with negation which are both a particular case of matrix Łukasiewicz algebras and a generalization of n-valued Łukasiewicz–Moisil algebras ([1]). It is worth noting that unlike what happens in n-valued Łukasiewicz–Moisil algebras, generally the De Morgan reducts of $n \times m$-valued Łukasiewicz algebras with negation are not Kleene algebras. Furthermore, in [7] an important example which legitimated the study of this new class of algebras is provided. Following the terminology established in [1], these algebras were called $n \times m$-valued Łukasiewicz–Moisil algebras (or $\mathrm{LM}_{n \times m}$-algebras for short).

In [3], tense $n \times m$-valued Łukasiewicz–Moisil algebras (or tense $LM_{n \times m}$-algebras) were introduced by A. V. Figallo and G. Pelaitay as an generalization of tense n-valued Łukasiewicz-Moisil algebras [2]. In this paper we continue the study of tense $LM_{n \times m}$-algebras. More precisely, we determine a Priestley-style duality for these algebras. This duality enables us not only to describe the tense $LM_{n \times m}$-congruences on a tense $LM_{n \times m}$-algebra, but also to characterize the simple and subdirectly irreducible tense $LM_{n \times m}$-algebras.

Referencias

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