

On Boolean elements and derivations in 2-dimension linguistic lattice implication algebras

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Abstract

A 2-dimension linguistic lattice implication algebra (2DL-LIA) can build a bridge for logical algebras and 2-dimension fuzzy linguistic information. In this paper, the notion of a Boolean element is proposed in a 2DL-LIA and some properties of Boolean elements are discussed. Then derivations on 2DL-LIAs are introduced and the related properties of derivations are investigated. Moreover, it proves that the derivations on 2DL-LIAs can be constructed by Boolean elements.

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