

K-modal BL-logic and Some of Its Extensions

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Abstract

In this talk we introduce the fuzzy minimal modal algebra in Hajek's view which is called *K*-modal *BL*-algebra for abbreviation. The properties of this algebra and some types of its filters are studied. Then we present the logic corresponding to this algebra, i.e. fuzzy minimal modal logic. We introduce some extensions of the *K*-modal *BL*-logic such as *T*-modal *BL*-logic and *S4*-modal *BL*-logic. Properties of these logics are studied. We introduce the algebraic semantics of these logics. The algebraic semantics of *T*-modal *BL*-logic and *S4*-modal *BL*-logic are called *T*-modal *BL*-algebra and *S4*-modal *BL*-algebra, respectively. Then we show some properties of these algebras and the relationship between them is investigated.