

Modular Atomic Effect Algebras and the Existence of Subadditive States

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Abstract: Lattice effect algebras generalize orthomodular lattices and MV-algebras. We describe all complete modular atomic effect algebras. This allows us to prove the existence of order-continuous subadditive states (probabilities) on them. For the separable noncomplete ones we show that the existence of a faithful probability is equivalent to the condition that their MacNeille completion is a complete modular effect algebra.

Keywords: effect algebra; modular atomic effect algebra; subadditive state; MacNeille completion of an effect algebra;

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