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Extensions of ordering sets of states from effect algebras onto their MacNeille completions.
(English) [Zbl 1270.06005](#)

Int. J. Theor. Phys. 52, No. 6, 2171-2180 (2013).

Summary: In [Z. Riečanová and M. Zajac, Rep. Math. Phys. 70, No. 3, 283–290 (2012; [Zbl 1268.81014](#))] it was shown that an effect algebra E with an ordering set \mathcal{M} of states can be embedded into a Hilbert space effect algebra $\mathcal{E}(l_2(\mathcal{M}))$. We consider the problem when its effect-algebraic MacNeille completion \hat{E} can be also embedded into the same Hilbert space effect algebra $\mathcal{E}(l_2(\mathcal{M}))$. That is, when the ordering set \mathcal{M} of states on E can be extended to an ordering set of states on \hat{E} . We give an answer for all Archimedean MV-effect algebras and Archimedean atomic lattice effect algebras.

MSC:

[06D35](#) MV-algebras

[06A15](#) Galois correspondences, closure operators (in relation to ordered sets)

[81P10](#) Logical foundations of quantum mechanics; quantum logic (quantum-theoretic aspects)

Cited in 1 Document

Keywords:

effect algebra; MV-effect algebra; MacNeille completion; positive linear operators in Hilbert space; Hilbert space effect-representation

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