

Simultaneous Extensions of States on Quantum Logics

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Abstract

Suppose that L is a quantum logic (= an orthomodular poset) and A, B are Boolean subalgebras of L . Suppose further that s_1 (resp. s_2) is a state on A (resp. on B). We ask when both s_1 and s_2 allow for a simultaneous extension over L . Under a natural necessity condition on A, B, s_1, s_2 we find a sufficient condition for the existence of the extension. This condition is the requirement of an abundance of two-valued states on L . We then show by the Greechie pasting technique that this condition is far from necessary even for state-space-rich logics.

References

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