

Monoidal Categories of Effect Algebras

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A categorical description of the tensor product is provided within the context of quantum structures, specifically focusing on effect algebras, partial commutative monoids, and related structures. To address this, the framework of multicategories is adopted, allowing for a more general and natural treatment of these concepts. The main result is a formal demonstration that the aforementioned multicategories are representable. Furthermore, the relationship between these structures is explored through multiadjunctions. These results provide a unified perspective on the construction of tensor products and establish a solid foundation for further research into higher categorical structures of quantum logic.