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Preservation of Elementary Equivalence under Tensor Products

The study of how elementary equivalence behaves under various operations on structures traces back to 1959, when Feferman and Vaught proved that it is preserved under reduced products. Although elementary equivalence is not, in general, preserved under tensor products in the category of C^* -algebras, it remains open whether this preservation holds in the category of tracial von Neumann algebras. In joint work with Ilijas Farah, we applied a Feferman–Vaught–type theorem to show that tensoring with type I algebras does preserve elementary equivalence within the category of tracial von Neumann algebras.