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Pseudo symmetric multifunctors: coherence and applications to K-theory

Donald Yau defined pseudo symmetric multifunctors between symmetric multicategories and proved that Mandell's inverse K-theory gives one example. We present new examples of pseudo symmetric multifunctors in the form of a coherence theorem for pseudo commutative 2-monads. Via a coherence theorem for pseudo symmetric multifuntors, we prove that they preserve E_n-algebras parametrized by Σ-free operads. This implies that inverse K-theory preserves such algebras, and thus, every such algebra in Γ-categories is stably equivalent to the K-theory of some permutative category.