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Assembly and Morita invariance in the algebraic K -theory of Lawvere theories

Abstract: We present the algebraic K -theory of Lawvere theories as a context for the stable homology of the automorphism groups of algebraic structures, such as the symmetric groups, the general linear groups, and the automorphism groups of free groups. We show that it forms a monoidal functor for the Kronecker monoidal product, embedding the classical assembly maps in algebraic K -theory into our framework. We include many old and new examples. In particular, we compute the algebraic K -theory of the Lawvere theory of Boolean algebras and all theories Morita equivalent to it, in terms of the stable homotopy groups of spheres. This result implies that the higher algebraic K -theory of Lawvere theories, though invariant under passage to matrix theories, is not fully Morita invariant.