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Tensor complexes

The most fundamental complexes of free modules over a commutative ring are the Koszul complex, which is constructed from a vector (i.e., a 1-tensor), and the Eagon–Northcott and Buchsbaum–Rim complexes, which are constructed from a matrix (i.e., a 2-tensor). I will discuss a multilinear generalization of these complexes, which we construct from an arbitrary higher tensor. Our construction provides detailed new examples of minimal pure free resolutions, as well as a unifying view of several well-known examples. This is joint work with Daniel Erman, Manoj Kummini, and Steven V Sam.