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Title: Objective combinatorial bialgebraic structures from decomposition spaces

Abstract: Decomposition spaces (introduced independently by Dyckerhoff and Kapranov under the name 2-Segal spaces) are simplicial spaces with a certain exactness property that models coassociativity in the same way that usual Segal spaces capture associative composition, and they have been proved by Walde to be equivalent to invertible infinity operads. The aim of this talk will be to present joint work in progress with Joachim Kock and Andrew Tonks aiming at using these spaces to construct the objective counterparts of many classical combinatorial bialgebras of topological and geometric significance and to explore their properties. Changes of bases are modelled by further decomposition spaces of independent interest. In particular, bialgebras of various symmetric functions (with several different bases) will be considered, as well as the Galois connections relating them.