Large Simplicial Expressions in Algebraic Topology

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Abstract

Working in the context of Simplicial Topology, cohomology operations can be expressed in terms of compositions of component morphisms of an Eilenberg-Zilber chain homotopy equivalence and tensor product permutations. Taking into account that a simplicial operator can be putted into a canonical form (this process can be called normalization of the simplicial operator), such combinatorial formulation for cohomology operations admits a natural simplification in terms of simplicial expressions consisting uniquely in face operators. In order to give an efficient answer to this simplification question, we deal with here some techniques for efficiently normalizing particular large simplicial expressions.