

On Category of Multialgebras

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A multialgebra (or hyperalgebra), $\mathbf{H} = \langle H, (\beta_i, | i \in I) \rangle$, where H is a set and β_i s are finitary multi-operations (or hyperoperations), for all $i \in I$. We introduce the category of multialgebras, as a category which its objects are multialgebras and its morphisms are (various) homomorphisms of multialgebras of the same type. The fundamental relation of a multialgebra $\mathbf{H} = \langle H, (\beta_i, | i \in I), \beta^* \rangle$, is defined as the smallest equivalence relation on H such that the the quotient space H/β^* is an algebra. Finally, we investigate the connection between the categories of multialgebras and algebras by construction a functor between these categories.