

## **Structure of the Universal Drinfeld-Yetter algebra.**

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**Abstract:** The Universal Drinfeld-Yetter algebra naturally came from in the context of quantization of Lie bialgebras. In the Etingof-Kazhdan universal quantization, a crucial role is played by the PROP (product and permutation category) of Drinfeld-Yetter modules, which is generated by a Lie bialgebra object  $b$ , a Drinfeld-Yetter  $b$ -module  $V$ , and bracket, cobracket, action, and coaction morphisms. The universal Drinfeld-Yetter algebra is then defined as the space of all endomorphisms of the object  $V$ .

The aim of this talk is to study such algebra, where the underlying vector space turns to be isomorphic to the direct sum of all group algebras of symmetric groups. In particular, we focus on the product, which is easy to describe algorithmically, but very complex to describe in a closed form. Finally, we define some auxiliary combinatorial objects (namely the Drinfeld-Yetter mosaics and the Drinfeld-Yetter looms) in order to find a combinatoric (and relatively simpler) description of the product.