

FREENESS OF QUASI AND WEAK HOPF ALGEBRAS

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I will investigate the freeness of quasi-Hopf algebras and weak Hopf algebras over their quasi Hopf resp. weak Hopf and coideal subalgebras.

For quasi-Hopf algebras, I generalize Skryabins Freeness Theorem (2007) and show that finite dimensional quasi Hopf algebras are free over their right coideal subalgebras and that the latter are Frobenius. This includes Schauenburg's Quasi Hopf Algebra Freeness Theorem (2004), a generalization of the famous Nichols-Zoeller Theorem.

In the case of weak Hopf algebras, the Freeness Theorems do not hold in general. I will present counter examples and discuss weaker versions of the Freeness Theorems for weak Hopf algebras.

Preprint: <http://www.mathematik.uni-muenchen.de/~henker/FreenessofQHAPreprint.pdf>