# Drinfeld twists of the coproduct for quantum toroidal algebra of type gl(1)

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Quantum toroidal algebras (QTAs) have a large automorphism group containing SL(2,Z) (the mapping class group of the torus T^2). The coproduct structure on a QTA, however, is not invariant under the full SL(2,Z), but only under SL(2,Z)/<T>, hence there is an infinite number of coproducts. Different coproducts are related by nontrivial Drinfeld twists. We give explicit formulas for some nontrivial twists, most importantly for the twist connecting the coproducts related by the S element of SL(2,Z). These results are relevant for the theory of integrable systems as well as for representation theory of QTAs.