1022-11-11   **Robert S. Maier***, Dept. of Mathematics, University of Arizona, Tucson, AZ 85721. *Algebraic hypergeometric transformations of modular origin.*

We show how Ramanujan's cubic transformation of the Gauss hypergeometric function $_2F_1$ arises from a relation between two genus-zero modular curves, namely the covering of $X_0(3)$ by $X_0(9)$, and the lifting of a weight-1 form from the former to the latter. Additional algebraic transformations of $_2F_1$ and other solutions of Fuchsian differential equations arise from other coverings, i.e., subgroup relations. The transformations are parametrized by rational functions. In the more sophisticated case when the covering curve is of positive genus but its quotient under the Fricke involution is of genus zero, parametrization is by 2-valued algebraic functions. The resulting hypergeometric tranformations are related to the 2-valued modular equations of Fricke and H. Cohn. We work out several examples. (Received July 18, 2006)

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