1067-16-1849 **David E. Radford*** (radford@uic.edu), Mathematics, Statistics, and Computer Sience, U. of Illinois at Chicago, 851 S. Morgan (m/c 249), Chicago, IL 69607-7045. *A Freeness Result Revisited.* Preliminary report.

The relationship between a Hopf algebra over a field and a Hopf subalgebra has been of interest over the years. Finite-dimensional Hopf algebras are free over their Hopf subalgebras by the Nichols-Zoeller Theorem. The first example of a Hopf algebra which is not free over one of its Hopf subalgebras was described by Oberst and Schneider; another example having the same characteristics was given by Takeuchi. These examples depend heavily on the field. An example defined over any field was described by the author. Generalizing the techniques used in the construction of the latter strongly suggests how to construct a class of commutative examples. Commutative Hopf algbebra are projective modules over their Hopf subalgebras by a result of Takeuchi. (Received September 22, 2010)