1135-16-383 **Jonathan Beardsley*** (jbeards1@uw.edu). *Toward Derived Hopf-Galois Extensions.* Preliminary report.

I will describe how, in the derived setting, the quotient map $\hat{\mathbb{Z}}_2 \to \mathbb{Z}/2\mathbb{Z}$ is a Hopf-Galois extension, with associated Hopf-algebra $B\mathbb{Z} \simeq S^1$. Here, the algebra structure is the group structure on S^1 and the coalgebra structure is the diagonal map $\Delta\colon S^1 \to S^1 \times S^1$ (which makes S^1 into a bialgebra, since it is an algebra object in the category of topological coalgebras). In particular, we regard $\mathbb{Z}/2\mathbb{Z}$ as the quotient of the group action $\mathbb{Z} \to Aut(\mathbb{Z})$ given by $1 \mapsto -1$. Describing this in full detail requires methods from stable homotopy theory and the theory of operads, which I will omit. However, the above Hopf-Galois extension suggests that, more generally, given an action of a group G on a ring R, we can think of $R \to R/G$ as a Hopf-Galois extension with "Hopf-algebra" the space BG. This is a form of generalized Koszul duality. (Received August 29, 2017)