

1129-22-519

**Joshua M. Lansky\*** (lansky@american.edu), Department of Mathematics and Statistics, American University, 4400 Massachusetts Avenue, NW, Washington, DC 20016-8050, and **Jeffrey D. Adler** (jadler@american.edu), Department of Mathematics and Statistics, American University, 4400 Massachusetts Avenue, NW, Washington, DC 20016-8050. *Root Data with Group Actions*.

Suppose  $k$  is a field,  $G$  is a connected reductive  $k$ -group, and  $T$  is a maximal  $k$ -torus of  $G$ . Let  $\Gamma$  be a finite group that acts via quasi-semisimple  $k$ -automorphisms on  $G$ , fixing  $T$ . Then the pair  $(G, T)$  gives rise to a root datum  $\Psi$  on which  $\text{Gal}(k) \times \Gamma$  acts. We construct a right inverse to this process. That is, given a root datum on which  $\text{Gal}(k) \times \Gamma$  acts, we show how to construct a pair  $(G, T)$  as above, canonical up to an equivalence relation, where  $G$  is  $k$ -quasisplit. We discuss applications of this result to the representation theory of finite reductive groups. (Received March 21, 2017)