Let $G$ be a finite group, $A \subseteq \text{Aut}(G)$, and let $C_G(A)$ denote the fixed-point subgroup of $A$ in $G$. The main idea in this talk is to investigate the fact that if $F \subseteq C_G(A)$, then $F$ acts (possibly trivially) on the set of orbits of $A$ in $G$. The set of stabilizers in $F$ of the orbits of $A$ in $G$ can be effectively computed and used to derive interesting consequences if more is known about either $A$ or $F$.

One such result is that if $|F|$ and the number of orbits of $A$ in $G$ are coprime, then $F \subseteq [G, A]$ and $\text{core}_G(F) \subseteq Z(G, A)$. (Received September 17, 2007)