Let $G$ be a finite group acting effectively on a smooth quasi-projective variety $X$. Additive invariants of the $G$-equivariant derived category of $X$ are known to decompose into additive invariants of certain varieties related to $X$ and the $G$-action. Polishchuk and Van den Bergh have conjectured that such a decomposition should arise from a semiorthogonal decomposition of derived categories. We prove that these conjectured semiorthogonal decompositions exists when $X$ is an Abelian variety in arbitrary dimension. (Received August 27, 2018)