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Tomaz Pisanski*, Tomaz.Pisanski@upr.si, Slovenia, and **Thomas W Tucker**. *Embeddings of Action Graphs*. Preliminary report.

In the literature, one can find at least three different genus parameters associated with a finite group: genus, symmetric genus and strong symmetric genus. We use the family of generalized dihedral groups as a working example for studying bounds for these parameters. While genus of a group is defined in terms of the (undirected, non-edge-colored) Cayley graphs, plain graphs are not adequate for modelling symmetric and strongly symmetric embeddings and thus cannot be used directly for determining the symmetric and strong symmetric genus of a group. We propose (generalized) action graphs to model such embeddings. Although action graphs are wider class of edge-colored, partially directed graphs than Cayley color (di)graphs, the idea of symmetric and strongly symmetric embedding can be applied to them. In addition, we present some applications of action graphs. (Received February 19, 2021)