

A Naming Issue

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A group G gives a slew of maps $G^n \rightarrow G^m$, using just multiplication, duplication, and inverses. What would we call the gadgets that has the same maps and relations between them, except they go $G_n \rightarrow G_m$, where the sets G_n aren't necessarily power sets of G , ?

What For the same, but starting from a group G and its action on a group H (so that the semi-direct product $H \rtimes G$ could be formed)?