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William A. Bogley (bill.bogley@oregonstate.edu), Mathematics, Oregon State University, Corvallis, OR 97331, and **David Pengelley*** (davidp@nmsu.edu), Mathematics, Oregon State University, Corvallis, OR 97331. *How can symmetries of a rectangle, tethered up to homotopy, provide a physical model for the quaternion group? Generalizations?* Preliminary report.

The 8-element quaternion group can be represented by rectangle symmetries up to tethered homotopy. But tethered how? Via a strip, or strings, which may realize different groups? And can this be generalized, e.g., to a tethered tetrahedron, icosahedron, or other objects? What groups arise? (Received September 25, 2018)