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Karoline Patricia Null* (knull@utm.edu), Dept of Mathematics and Statistics, 424 Andy Holt Humanities Building, 209 Hurt Street, Martin, TN 38238. *Sufficient conditions for recognizing a 3-manifold group.*

We ask when a group is a 3-manifold group, or more specifically, when does a group presentation come naturally from a Heegaard diagram for a 3-manifold? We will give some conditions for partial answers to this form of the Isomorphism Problem by addressing how the presentation associated to a diagram for a splitting is related to the fundamental group of a 3-manifold, still using diagrams as a tool to answer these questions. In the process, we determine an invariant of groups (by way of group presentations) for how far such presentations are from 3-manifolds. (Received January 19, 2011)