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MC4406, 2990 Broadway, New York, NY 10027. *Three-manifold mutations detected by Heegaard
Floer homology.*

Given a self-diffeomorphism h of a closed, orientable surface S and an embedding f of S into a three-manifold M , we construct a mutant manifold N by cutting M along $f(S)$ and regluing by h . We will consider whether there are any gluings such that for any embedding, the manifold and its mutant have isomorphic Heegaard Floer homology. In particular, we will demonstrate that if the gluing is not isotopic to the identity, then there exists an embedding of S into a three-manifold M such that the rank of the non-torsion summands of the Heegaard Floer homology of M differs from that of its mutant. (Received January 27, 2014)