Isomorphism Classes and Derived Series of Certain Almost-Free Groups

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Abstract

Baumslag defined a family of groups that are of interest because they closely resemble free groups, yet are not free. It was known that each group in this family has the same lower central series of quotients and the same first two terms in the derived series of quotients as does the free group F on two generators.

We have verified that there are different isomorphism types among the groups in the family, and that the third terms in the derived series of quotients are often distinct from that of F. Our basic technique is to count the number of homomorphisms from the groups of interest to a target group.