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THE SOLVABILITY OF THE CONJUGACY PROBLEM FOR CERTAIN HNN GROUPS

BY MICHAEL ANSHEL AND PETER STEBE

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1. **Introduction.** Let B be a free product of finitely generated free groups with infinite cyclic amalgamated subgroups. It is well known that B has a solvable conjugacy problem **[12]**. Suppose B is given by

$$\langle b_1, \cdots, b_n, c_1, \cdots, c_m; R(b_1, \cdots, b_n) = S(c_1, \cdots, c_m)\rangle,$$

and let W and V be words in the generators of B defining nonidentity elements of the same order. Let G be the HNN group in the sense of **[11]** given by

$$\langle a, b_1, \cdots, b_n, c_1, \cdots, c_m; R = S, a^{-1}Wa = V\rangle.$$

Here we show

THEOREM. *If B is residually free and 2-free then G has solvable conjugacy problem.*

Let A consist of those groups B given above such that $m=n$, $S=f(R)$, where $f: \langle b_1, \cdots, b_n;\rangle \to \langle c_1, \cdots, c_n;\rangle$ is an isomorphism and R generates its own centralizer in its factor. From **[5]** and our theorem we obtain

COROLLARY 1. *If B is in A then G has solvable conjugacy problem.*

As a consequence we obtain a result known to a number of workers in this area:

COROLLARY 2. *Let G be a one-relator group given by*

$$\langle a, b_1, \cdots, b_k; a^{-1}P(b_1, \cdots, b_k)a = Q(b_1, \cdots, b_k)\rangle.$$

Then G has solvable conjugacy problem.

Among these groups are the two generator one-relator nonhopfian groups $G(l, m)$ which have been the subject of a great deal of discussion in recent years **[1, 2, 3, 5, 6, 15]**. For concepts and terminology the reader should consult **[14]**, **[16]**.

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