

# A NOTE ON NONRESIDUALLY SOLVABLE HYPERLINEAR ONE-RELATOR GROUPS

JON P. BANNON AND NICHOLAS NOBLETT, REVIEWED BY THOMAS  
KOBERDA

In this note, the authors study Baumslag–Solitar–like nonresidually finite, nonresidually solvable two-generated, one-relator groups of the form

$$\Gamma_{r,w} = \langle a, b \mid r^{r^w} = r^2 \rangle,$$

where  $r$  and  $w$  are two non-commuting elements of the free group on  $a$  and  $b$ . The note proves that many of these groups are so-called sofic, meaning that they embed into a metric ultraproduct of finite symmetric groups, together with some further technical condition.

The main results of the note are that  $\Gamma_{a,b^{-1}ab}$  is sofic, and that  $\Gamma_{a,b^2}$  is an amalgamated product of the form

$$(G * \mathbb{Z})_{*F_2},$$

where  $G$  is a one-relator amenable group.

DEPARTMENT OF MATHEMATICS, HARVARD UNIVERSITY, 1 OXFORD ST., CAMBRIDGE,  
MA 02138

*E-mail address:* `koberda@math.harvard.edu`