A dichotomy for finitely generated subgroups of word hyperbolic groups

Goulnara N. Arzhantseva

Abstract. Given $L > 0$ elements in a word hyperbolic group G, there exists a number $M = M(G, L) > 0$ such that at least one of the assertions is true: (i) these elements generate a free and quasiconvex subgroup of G; (ii) they are Nielsen equivalent to a system of L elements containing an element of length at most M up to conjugation in G. The constant M is given explicitly. The result is generalized to groups acting by isometries on Gromov hyperbolic spaces. For proof we use a graph method to represent finitely generated subgroups of a group.

Université de Genève, Section de mathématiques, 2-4, rue du Lièvre, CH-1211 Genève 24

E-mail address: `Goulnara.Arjantseva@math.unige.ch`

2000 *Mathematics Subject Classification.* 20F67;20E07.

Key words and phrases. Word hyperbolic groups, quasigeodesics, Nielsen equivalence.

The work has been supported in part by the Swiss National Science Foundation, No. PP002-68627.