962-20-866

Ilya Kapovich* (kapovich@math.uiuc.edu), Department of Mathematics, University of Illinois, 1409 West Green Street, Urbana, IL 61801, and Richard Weidmann (Richard.Weidmann@ruhr-uni-bochum.de), Department of Mathematics, Ruhr-Universitat at Bochum, 44780 Bochum, Germany. Subgroup structure of word-hyperbolic groups.

We generalize a claim from M.Gromov's book "Hyperbolic Groups" that in a torsion-free word-hyperbolic group G any k-generated non-free subgroup contains an element of "short" conjugacy length, where the "shortness" constant depends only on k and G. More precisely, we prove the following: **Theorem** Let G be a word-hyperbolic group (not necessarily torsion-free) with a finite generating set X such that the Cayley graph $\Gamma(G, X)$ is δ -hyperbolic. Then for any integer $k \geq 1$ there exists a constant $C = C(k, \delta) > 0$ with the following property. Let $M = (g_1, \ldots, g_k)$ be a k-tuple of elements of G. Let H be the subgroup of G generated by M. Then either H is free on M and quasiconvex in G or M is Nielsen-equivalent to a k-tuple $M' = (f_1, \ldots, f_k)$ where the element f_1 is conjugate in G to an element of length at most $C(k, \delta)$. This shows that in a non-free k-generated subgroup the conjugacy length of the fist generator in a generating k-tuple can be made small. Further generalizations of this statement will also be discussed. (Received September 28, 2000)