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On distortion of normal subgroups. (English) Zbl 07348160
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Summary: We examine distortion of finitely generated normal subgroups. We show a connection between subgroup distortion and group divergence. We suggest a method computing the distortion of normal subgroups by decomposing the whole group into smaller subgroups. We apply our work to compute the distortion of normal subgroups of graph of groups and normal subgroups of right-angled Artin groups that induce infinite cyclic quotient groups. We construct normal subgroups of CAT(0) groups introduced by Macura and introduce a collection of normal subgroups of right-angled Artin groups. These groups provide a rich source to study the connection between subgroup distortion and group divergence on CAT(0) groups.

MSC:
20F67 Hyperbolic groups and nonpositively curved groups
20F65 Geometric group theory

Keywords:
normal subgroups; subgroup distortion; group divergence

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References:
[1] Bestvina, M.; Brady, N., Morse theory and finiteness properties of groups, Invent. Math., 129, 3, 445-470 (1997) · Zbl 0888.20021 · doi:10.1007/s002220050168
[2] Barnard, J.; Brady, N., Distortion of surface groups in CAT(0) free-by-cyclic groups, Geom. Dedic., 120, 119-139 (2006) · Zbl 1167.20024 · doi:10.1007/s10711-006-9072-1
[3] Behrstock, J.; Charney, R., Divergence and quasimorphisms of right-angled Artin groups, Math. Ann., 352, 2, 339-356 (2012) · Zbl 1251.20036 · doi:10.1007/s00208-011-0641-8
[4] Behrstock, J.; Druţu, C., Divergence, thick groups, and short conjugators, Ill. J. Math., 58, 4, 939-980 (2014) · Zbl 1329.20024
[5] Behrstock, J.; Druţu, C.; Mosher, L., Thick metric spaces, relative hyperbolicity, and quasi-isometric rigidity, Math. Ann., 344, 3, 543-595 (2009) · Zbl 1220.20037 · doi:10.1007/s00208-008-0317-1
[6] Gersten, SM, Quadratic divergence of geodesics in \((\text{CAT}(0))\) spaces, Geom. Funct. Anal., 4, 1, 37-51 (1994) · Zbl 0809.53054 · doi:10.1007/BF01898360
[7] Karrass, A.; Solitar, D., The subgroups of a free product of two groups with an amalgamated subgroup, Trans. Am. Math. Soc., 150, 227-255 (1970) · Zbl 0223.20031 · doi:10.1090/S0002-9947-1970-0260679-9
[8] Macura, N., CAT(0) spaces with polynomial divergence of geodesics, Geom. Dedic., 163, 361-378 (2013) · Zbl 1329.57002 · doi:10.1007/s10711-012-9754-9
[9] Meier, J.; VanWyk, L., The Bieri-Neumann-Strebel invariants for graph groups, Proc. Lond. Math. Soc. (3), 71, 2, 263-280 (1995) · Zbl 0835.20037 · doi:10.1112/plms/s3-71.2.263
[10] Papadima, S.; Suciu, AI, Toric complexes and Artin kernels, Adv. Math., 220, 2, 441-477 (2009) · Zbl 1208.57002 · doi:10.1016/j.aim.2008.09.008
[11] Sisto, A.: On metric relative hyperbolicity. Preprint. arXiv:1210.8081 · Zbl 1309.20036
[12] Tran, H.C.: Geometric embedding properties of Bestvina-Brady subgroups. J Algebr Geom Topol. arXiv:1606.00539 · Zbl 1398.20056

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