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On boundaries of bicombable spaces
(O brzegach przestrzeni biczesalnych)

doctoral thesis supervised by   Jan Dymara and Damian Osajda

Abstract

In the first part of the thesis we initiate systematic study of EZ-structures (and associated boundaries) of groups acting on spaces that admit consistent and conical (equivalently, consistent and convex) geodesic bicombings. Such spaces recently drew a lot of attention due to the fact that many classical groups act 'nicely' on them. We rigorously construct EZ-structures, discuss their uniqueness (up to homeomorphism), provide examples, and prove some boundary-related features analogous to the ones exhibited by CAT(0) spaces and groups, which form a subclass of the discussed class of spaces and groups.

In the second part of the thesis we give complete characterizations (in terms of nerves) of those word hyperbolic Coxeter groups whose boundary is homeomorphic to the Sierpiński curve and to the Menger curve, respectively. The justification is mostly an appropriate combination of various results from the literature.