PARABOLIC SUBGROUPS OF COMPLEX BRAID GROUPS

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ABSTRACT. Joint work with Ivan Marin. We introduce a class of parabolic subgroups for the generalized braid group associated to an arbitrary complex reflection group, which maps onto the collection of parabolic subgroups of the reflection group. Using suitable Garside structures in theses groups, we prove that this family coincides with the set of parabolic subgroups defined by Godelle for arbitrary Garside groups.

We will show that every element admits a parabolic closure (a minimal parabolic subgroup containing it), and that the intersection of parabolic subgroups is a parabolic subgroup. This collection provides a simplicial complex, which generalizes the curve complex of the usual braid group. In the case of real reflection groups, this complex generalizes the one previously introduced by Cumplido, Gebhardt, Gonzalez-Meneses and Wiest for Artin groups of spherical type. We similarly conjecture its hyperbolicity.