

COMBINATORIAL MODELS FOR SURFACE AND FREE GROUP SYMMETRIES

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Abstract. The curve complex of Harvey allows combinatorial representation of a surface mapping class group by describing its action on simple closed curves. Similar complexes of spheres, free factors, and free splittings allow combinatorial representation of the automorphisms of a free group. We consider a Birman exact sequence for combinatorial models of mapping class groups and free group automorphisms. We apply this and other extension techniques to compute the automorphism groups of several simplicial complexes associated with mapping class groups and automorphisms of free groups.