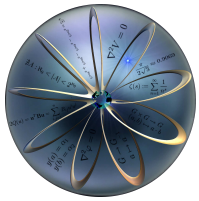

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groups that act freely on trees are free

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Theorem. *Groups that act freely and without inversions on trees are free.*

Proof. Let Γ be a group acting freely and without inversions by graph automorphisms on a tree T. Since Γ acts freely on T, the quotient graph T/Γ is well-defined, and T is the universal cover of T/Γ since T is contractible. Thus by faithfulness $\Gamma \cong \pi_1(X/\Gamma)$. Since any graph is homotopy equivalent to a wedge of circles, and the fundamental group of such a space is free by Van Kampen's theorem, Γ is free. $\square$