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The shortest language spoken by a group

Let $\mathrm{Geo}(G, X)$ be the set of all words over a generating set X of a group G that label geodesic paths in the corresponding Cayley graph for G. For many classes of groups, including word hyperbolic groups, Coxeter groups, and Garside groups, it is known that there are finite generating sets X for which $\mathrm{Geo}(G, X)$ is regular. In this talk I will discuss geometric and combinatorial properties of finitely generated groups for which $\mathrm{Geo}(G, X)$ satisfies stronger language-theoretic conditions, in particular lying in the classes of star-free, locally excluding, and locally testable languages.