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Bob Gilman

Stevens Institute of Technology

The Relative Complexity of Formal Languages Associated with Finitely Generated Groups.

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Abstract:
The past several years have seen the emergence of many fascinating connections between linguistic properties of the word problem, W, (construed as the membership problem for a formal language) of a finitely generated group, G, and algebraic and geometric properties of G itself. We investigate instead how the word problem relates to other decision problems for G. We show that the word problem is close, in a certain sense, to the membership problem for finitely generated subgroups of G, but less close to the conjugacy problem.