ON GENERATION OF ARITHMETIC GROUPS BY CONJUGACY CLASSES

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I will discuss word metrics on groups associated with generating sets invariant under conjugation. It turns out that such a metric on $\mathrm{SL}(n, \mathbb{Z})$ has finite diameter if $n \geq 3$. I will discuss the question of how does the diameter depend on the choice of a generating set. In particular, whether there is a uniform bounds. The answer depends on the number of conjugacy classes comprising the generating set and it was obtained a few years ago by Libman, Martin and myself.

One expects that such results should generalise to other arithmetic Chevalley groups and indeed they do which is a recent theorem of Alexander Trost. His proof (different from ours) is based on model theoretic ideas of Dave Witte Morris. I will present the main ideas of his argument and some consequences.