

LINEAR CONJUGACY IN SIMPLE ALGEBRAIC GROUPS

ANDREY MINCHENKO

ABSTRACT. Let $G \subset \mathrm{GL}_n$ be a simple linear algebraic group over an algebraically closed field k and H a semisimple algebraic group. Suppose that there are two equivalent linear representations $\alpha, \beta : H \rightarrow G \subset \mathrm{GL}_n$, i. e. there exists an element $g \in \mathrm{GL}_n$ such that $\beta(h) = g\alpha(h)g^{-1}$ for all $h \in H$. We will consider the following question: can g be taken from G ? With some reasonable additional assumptions, the answer to this question is positive but a few exceptions. I will describe these exceptions and, if time permits, mention related results of my recent joint work with Eugene Dynkin.