1012-55-176 **Alexander Fel'shtyn*** (`felshtyn@diamond.boisestate.edu`), Department of Mathematics, Boise State University, 1910 University Drive, Boise, ID 83725-1555. *Nielsen-Reidemeister theory and representation varieties.*

This is joint work with E. Troitsky. It is proved for a wide class of groups including polycyclic and finitely generated polynomial growth groups that the Reidemeister number of an automorphism is equal to the number of finite-dimensional fixed points of induced map on the unitary dual, if one of these numbers is finite. This theorem is a natural generalization to infinite groups of the classical Burnside theorem. On the other hand it has important consequences in Topological Dynamics. (Received September 19, 2005)