

ATELIER « ÉQUATIONS ET PROPRIÉTÉS DU PREMIER ORDRE DANS LES GROUPES »  
11 – 15 OCTOBRE 2010

WORKSHOP ON “EQUATIONS AND FIRST-ORDER PROPERTIES IN GROUPS”  
OCTOBER 11 – 15, 2010

## Homogeneity of the free group and elements of primitive type

Chloé Perin \*

cperin@math.unistra.fr

---

A countable group  $G$  is said to be homogeneous if any two tuples of elements which satisfy the same first order formulas are in the same orbit under the action of the group of automorphisms of  $G$ . In a joint work with Rizos Sklinos, we showed that free groups of finite rank are homogeneous but that most surface groups do not have this property. This last result follows from a characterization we give of elements of finitely generated models of the theory of free groups which have the same type as a primitive element. The proofs use JSJ decompositions, the existence of factor sets for morphisms into a free group (Makanin-Razborov diagrams), and co-Hopf properties of free groups relative to some of their subgroups.

---

\*IRMA, Université de Strasbourg, 7 rue René-Descartes, 67084 Strasbourg Cedex, France.