

# Proof of Theorem: $\Gamma^{\phi}$ has a "fixed pt"

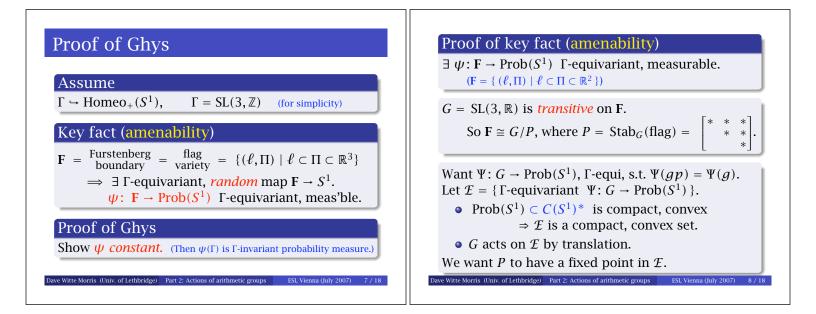
Burger-Monod: study *bounded cohomology*. (*amenability* is a key ingredient) Fixed point is one of many applications.

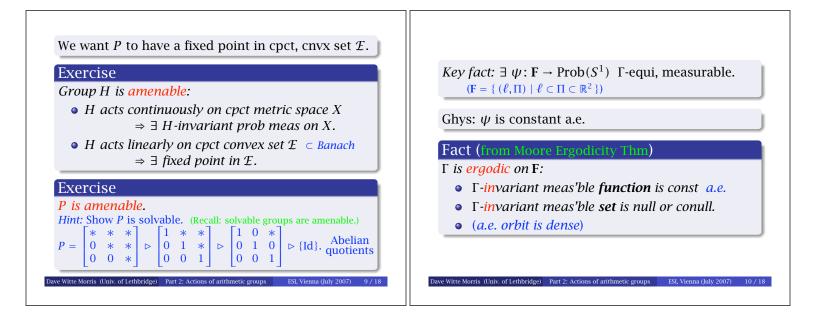
#### Proof of Ghys

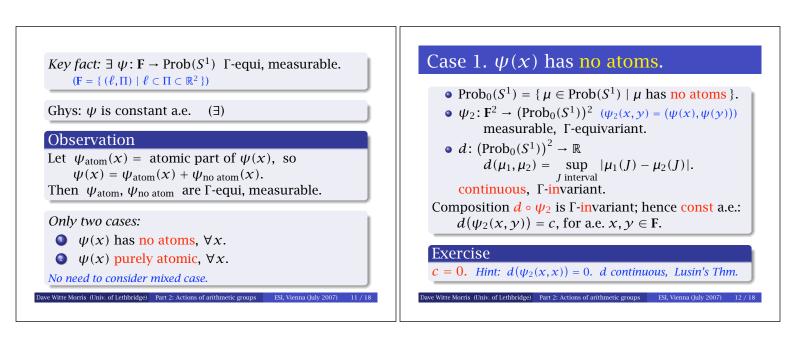
- *ergodic theory* (transf grps + measure theory)
- *amenability* (Poisson bdry, Furstenberg bdry)

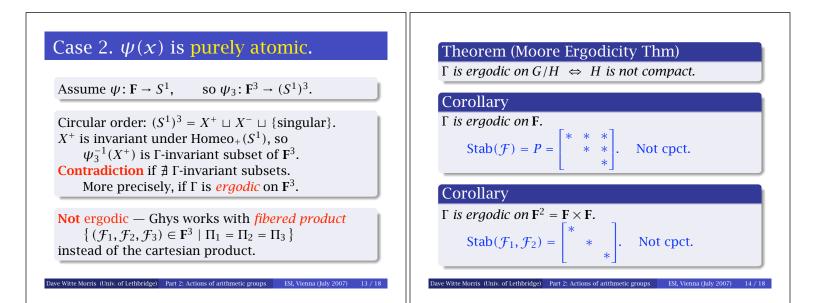
#### Exercise

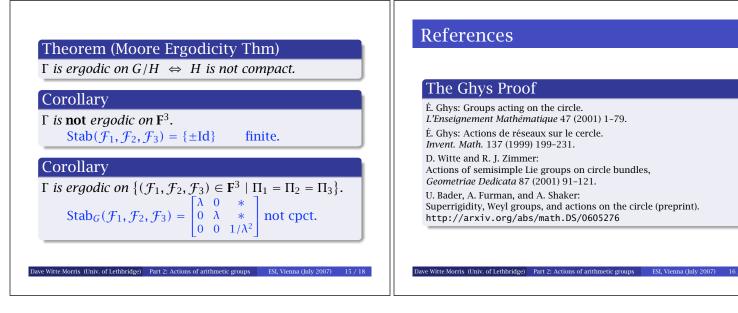
 $\exists \Gamma$ -inv't prob meas on  $S^1 \implies \exists$  finite orbit. *Hint: See Part 1 of the lectures. Assume abelianization of*  $\Gamma$  *is finite.* 











### The Burger-Monod Proof

N. Monod: *Continuous Bounded Cohomology of Locally Compact Groups.* Lecture Notes in Mathematics 1758. Springer, Berlin, 2001.

M. Burger and N. Monod:

Bounded cohomology of lattices in higher rank Lie groups.

*J. Eur. Math. Soc.* 1 (1999), no. 2, 199-235. Erratum 1 (1999), no. 3, 338. M. Burger and N. Monod:

Continuous bounded cohomology and applications to rigidity theory. *Geom. Funct. Anal.* 12 (2002), no. 2, 219–280.

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## Arithmetic groups not acting on 1-mflds

#### D. Witte:

Arithmetic groups of higher Q-rank cannot act on 1-manifolds, *Proc. Amer. Math. Soc.* 122 (1994) 333–340.

L. Lifschitz and D. W. Morris: Isotropic nonarchimedean *S*-arithmetic groups are not left orderable, *Comptes Rendus Acad Sci. Paris, Ser.* 1339 (2004), no. 6, 417–420.

L. Lifschitz and D. W. Morris: Bounded generation and lattices that cannot act on the line,

Pure and Applied Mathematics Quarterly (to appear). http://arxiv.org/abs/math/0604612

A. Navas: Actions de groupes de Kazhdan sur le cercle, Ann. Sci. École Norm. Sup. (4) 35 (2002), no. 5, 749-758.

#### Introduction to arithmetic groups

D. W. Morris: *Introduction to Arithmetic Groups* (preprint). http://people.uleth.ca/~dave.morris/LectureNotes.shtml

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