

AKSOE 1 Dynamics of Groups and Organizations I

Time: Monday 09:30–10:15

Room: BAR 205

Invited Talk

AKSOE 1.1 Mon 09:30 BAR 205

Competition Between Languages — •DIETRICH STAUFFER — Institute for Theoretical Physics, Cologne University, D-50923 Köln, Euro-land

Following Abrams and Strogatz 2003 and Patriarca and Leppanen 2004, five other physics groups independently started to simulate the competition of languages, as opposed to the evolution of a human language out of ape sounds, or the learning of a language by a child. This talk concentrates on the models of Christian Schulze et al and of Viviane de Oliveira et al which allow the simulation of a large number of languages, similar to today's 8,000 human languages. The first model deals with a continuous process of random mutations of a language, transfer from and to other languages, and flight away from languages spoken by only a few people. The second model combines these flight and mutation aspects, ignores transfer and describes the colonization of a large geographical region by people starting at one lattice point. The size of a language is defined by the number of people speaking it. The first model gives a realistic log-normal shape for the histogram of language sizes but the numbers are bad. For the second model our Monte Carlo simulations give sizes up to thousand million, but not the nearly log-normal shape. A meeting is planned for mid-September 2006 in Poland.