http://wwwhomes.uni-bielefeld.de/gjaeger/conferences/gamesincommunication2007

02. November 2007
Zentrum für interdisziplinäre Forschung
Tagungsraum „Round Table“ (Raum 213)
10:00h – 11:00h

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Finite populations choose an optimal language

This paper studies the evolution of a proto–language in a finite population under the frequency–dependent Moran process. A proto–language can be seen as a collection of concept–to–sign mappings. An efficient proto–language is a bijective mapping from objects of communication to used signs and vice versa. Based on the comparison of fixation probabilities, a method for deriving conditions of evolutionary stability in a finite population (Nowak et al. 2004, Nature), it is shown that efficient proto–languages are the only strategies that are protected by selection, which means that no mutant strategy can have a fixation probability that is greater than the inverse population size. In passing, the paper provides interesting results about the comparison of fixation probabilities as well as Maynard Smith’s notion of evolutionary stability for finite populations (Maynard Smith, 1988, J. theor. Biol.) that are generally true for games with a symmetric payoff function.