



UCSD Science Studies Program

Colloquium Series

presents

Robert Richardson

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University of Cincinnati

October 19, 2009

4:00 – 6:00pm

Humanities and Social Sciences Bldg. #3027

Reception prior to talk at 3:30 pm in HSS 3005

Matters of Chance: Drift and Selection in Evolutionary Explanations

Abstract

Natural selection and drift can explain the dynamics of populations, how gene frequencies, or genotype frequencies, or gene frequencies change with time. Given an initial distribution of genes, or genotypes, or phenotypes, with realistic parameter values for the population, we are able to project a probability distribution of the relevant frequencies over time. In the absence of selection, models for drift project specific patterns of change. These can be readily illustrated using the classic work on blood types by Cavalli-Sforza, in which the theoretically predicted patterns are exhibited in groups of human populations. These are, in the first instance, properties of ensembles of populations. In looking at specific populations, the problem needs to be understood in terms of how likely an observed change would be under drift, and this is a fundamentally probabilistic question. In both cases, the explanations are demonstrably autonomous, in the sense described by Hacking.

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