

Robustness of the Ewens Sampling Formula

by

Paul Joyce*

Abstract

Under the assumptions of the neutral infinite alleles model, K —the total number of alleles present in a sample, is sufficient for estimating θ —the mutation rate. This is a direct result of the Ewens sampling formula, which gives a consistent, asymptotically normal estimator for θ based on K . It is shown that the same estimator used to estimate θ under neutrality is consistent and asymptotically normal, even when the assumption of selective neutrality is violated.

INFINITE ALLELES MODEL, EXCHANGEABILITY, ABSOLUTE CONTINUITY, TAIL
SIGMA FIELDS, RESIDUAL ALLOCATION MODELS.

*University of Idaho, Department of Mathematics and Statistics, Moscow, Idaho 83844, USA
This research is supported by the National Science Foundation, DMS 92-07410. The author would like to thank the referee for many helpful comments.