

Continuous models for genetic evolution in large populations

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July 1, 2008

Abstract

We start from discrete evolutionary models in finite populations. Namely, we use the Wright-Fisher process for n different phenotypes. In the limit of large population, we obtain a partial differential equation for the evolution of the distribution of probability among the n phenotypes. This equation has degeneracies in the boundaries. It also divides in two parts, representing two natural processes: one for the natural selection and the other for the genetic drift. We analyze it and show its compatibility with other models in the literature.

This is a joint work with M. O. Souza.