Bachelor Thesis Abstract

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In my Bachelor Thesis we look at various models of population genetics, both forwards and backwards in time. The two main models we discuss is the Wright-Fisher model with geometric seed-bank component which evolves over discrete time, and the peripatric model, which is based on the Moran model which evolves over continuous time. Each model has a nice backwards in time process, called coalescent processes, and most of the times these coalescent processes tell us more about the models, than their forwards in time processes.

The seed-bank and the peripatric coalescent have been studied separately and it is an accepted fact that the two models have some kind of a connection to each other. The main goal of this paper is to discuss the seed-bank coalescent and the peripatric coalescent and have them written down in the same place. My main contribution to this topic is discussing some specific ways you can set the parameters of the peripatric coalescent to get the seed-bank coalescent, but only backwards in time.

Population genetics models discussed in this Bachelor Thesis:

- The Wright-Fisher model and the Kingman coalescent

- The Moran model

- The Wright-Fisher model with geometric seed-bank component and the seed-bank coalescent

- The peripatric model defined with the Moran model and the peripatric coalescent