

Abstract

Theoretical modelling provides insights that can be useful in furnishing statistical tools that would assist empiricists in checking the feasibility of their studies. This thesis focuses on developing explicit genetics models of sexual selection. In the first chapter, an introduction to the field is given along with the need for explicit genetic models. In the second chapter, the results of the mathematical model for runaway sexual selection developed by Dr Sergey Gavrilets is verified. In the third chapter, a model based on random mating is developed. In the final chapter, a modified version of the previous model which includes a sexual selection of parents is developed, and its various scenarios are studied. In the end, an annex is provided with all the Python codes and its explanations. The framework developed can be used for many more scenarios dealing with explicit genetics and thus serves as a foundation for further explorations.