In *Explaining Language Change: An Evolutionary Approach* (2000), I proposed an evolutionary framework for understanding language change, which among other things brings together the usage-based model and sociohistorical linguistics for a theory of how variation is generated and then propagated through a speech community. Since 2003, I have worked with a group of statistical physicists (Alan McKane, Richard Blythe and Gareth Baxter) in developing mathematical agent-based models that we have used to explore mechanisms by which variants are propagated in a speech community (taken with the usual grain of salt). These mechanisms include social valuation of linguistic variants, social network structure, adopter group theories, random processes and the child-based vs. usage-based theories of language change. In this presentation, I will provide an overview of the framework and the model, and present results, published and in progress, that suggest which mechanisms are likely to drive various observed patterns of language change.