Simulating the Cultural Evolution of Literary Genres

Graham Sack

PhD Student
Department of English & Comparative Literature
Columbia University

The purpose of this paper is to explore the evolutionary dynamics of literary genre: the development of the 19th Century British novel is used as a motivating case study. The authors construct an agent-based model consisting of two interacting levels: (I) A genetic algorithm in which cultural forms (e.g., works of literature, pieces of music, etc.) are represented as binary feature strings. Cultural forms evolve across generations via asexual and sexual reproduction. Genres are represented as hierarchical clusters of similar feature strings. (II) Cultural forms are subjected to the selection pressure of consumer preferences. Preferences are heterogeneous: each consumer's tastes are represented by an ideal point in feature space. Preferences are configured in landscapes that vary in their levels of structure, entropy, and diversity. Landscapes are dynamic and may change due to (1) exogenous demographic shifts (e.g., population growth, generational turnover) or (2) endogenous feedback effects (e.g., preference co-evolution, conformity / anti-conformity effects)