

Self-organized tower of Babel: Diversification through competition

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We introduce a minimal evolutionary model to show how local cooperation and global competition can create a transition to the diversity of communities such as linguistic groups. By using a lattice model with high-dimensional state agents and evolution under a fitness that depends on an agent's local neighborhood and global dissimilarity, clusters of diverse communities with different fitness are organized by equalizing the fitnesses on the boundaries, where their numbers and sizes are robust to parameters. We observe successive transitions over quasistationary states, as triggered by the emergence of new communities on the boundaries. Our abstract framework provides a simple mechanism for the diversification of culture.

