A Model for Cross-Cultural Reciprocal Interactions through Mass Media

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Abstract

We investigate the problem of cross-cultural interactions through mass media in a model where two populations of social agents, each with its own internal dynamics, get information about each other through reciprocal global interactions. As the agent dynamics, we employ Axelrod's model for social influence. The global interaction fields correspond to the statistical mode of the states of the agents and represent mass media messages on the cultural trend originating in each population. Several phases are found in the collective behavior of either population depending on parameter values: two homogeneous phases, one having the state of the global field acting on that population, and the other consisting of a state different from that reached by the applied global field; and a disordered phase. In addition, the system displays nontrivial effects: (i) the emergence of a largest minority group of appreciable size sharing a state different from that of the applied global field; (ii) the appearance of localized ordered states for some values of parameters when the entire system is observed, consisting of one population in a homogeneous state and the other in a disordered state. This last situation can be considered as a social analogue to a chimera state arising in globally coupled populations of oscillators.