

Abstract Submitted
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Absorbing multicultural states in the Axelrod model FEDERICO VAZQUEZ, CNLS-LANL and Boston U., SIDNEY REDNER, CNLS-LANL and Boston U. — We determine the ultimate fate of a limit of the Axelrod model that consists of a population of leftists, centrists, and rightists. In an elemental interaction between agents, a centrist and a leftist can both become centrists or both become leftists with equal rates (similarly for a centrist and a rightist), but leftists and rightists do not interact. This interaction is applied repeatedly until the system can no longer evolve. The constraint between extremists can lead to a frustrated final state where the system consists of only leftists and rightists. In the mean field limit, we can view the evolution of the system as the motion of a random walk in the 3-dimensional space whose coordinates correspond to the density of each species. We find the exact final state probabilities and the time to reach consensus by solving for the first-passage probability of the random walk to the corresponding absorbing boundaries. The extension to a larger number of states will be discussed. This approach is a first step towards the analytic solution of Axelrod-like models.

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