

Abstract

Latching Dynamics

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Potts networks, in certain conditions, hop spontaneously from one discrete attractor state to another with a process called *latching*. We show, with computer simulations, that latching transitions cluster in a number of distinct classes: effectively random transitions between weakly correlated attractors; structured, history-dependent transitions between attractors with intermediate correlations; and oscillations between pairs of closely overlapping attractors. Each type can be described by a reduced set of equations of motion, which, once numerically integrated, match simulations results. We propose that the analysis of such equations may offer clues on how to embed meaningful grammatical structures into more realistic models of specific recursive processes.