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Dynamics on infinite configurations

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Abstract: Configuration spaces are employed to model systems of point entities placed in a continuous habitat, X , usually a subset of \mathbb{R}^d , $d \geq 1$. The dynamics of such a system amounts to random motion (e.g., jumps), birth-and-death dynamics, or their combinations. In a more sophisticated model (which we shall not consider), the entities are also given additional characteristics (traits). If the system is finite and X is noncompact, the system always occupies a compact subset of X and thus has a tendency to extend to its empty subsets. Such systems are classified as developing in contrast to developed systems which therefore should be infinite. To describe such systems one employs infinite configurations. In this case, it is possible to distinguish between the global and the local behavior of a system. One of the central issues of the theory of such dynamics is to describe the mechanisms of the influence of the local on the global. We shall do this for a number of models of this sort.