

Maralee Harrell  
(Carnegie Mellon University)

## Chaos and Causation

Causal knowledge is generally taken to be valuable because it supports prediction, explanation, and control. Chaotic systems are widespread, but they seem to resist these ends, and so it is often assumed that we cannot have causal knowledge about these systems. Here we argue the contrary; we argue that we can have usable causal knowledge about even chaotic systems. Moreover, we argue that the ways in which we can have such knowledge lead us to rethink a standard understanding of how causal learning and modeling proceed. In particular, just as we often must find the appropriate variables for a causal system, we also must determine the proper level or granularity of description for the dynamics of that system.