

Maximilien Gadouleau (Durham University):

Simulation of Automata Networks

Abstract:

Automata Networks are simply generalisations of Boolean Networks, where each entity has q states instead of 2. One network f simulates another g when some sequential update schedule applied to f actually yields g . A seminal result shows that there is no "complete" network f , that can simulate any other g . We then prove several results related to simulation. Notably, we prove that for any Boolean Network g , there exists another one f that simulates g . This shows that "synchronous" BNs can always be viewed as "asynchronous" BNs. We also show that this feature is specific to the Boolean case.