

Simulating Dynamic Behavior on a Scale-Free Network Structure

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ABSTRACT

Behavior of complex systems reflects both internal and external influences. Here a simplified model of a complex system (scale-free N-K model) has been built to explore the behavior of such a system in the absence of external signal. Volatility of both single nodes and all nodes in the system are examined. The mean field approximation is shown to be faulty for the nodes in this network. In examining activity of real systems, it is often difficult to separate internal and external behavioral influences. Simulation methods such as this one allow the behavior of the system to be examined in isolation from external influences and provide a means for identifying the source, internal or external, of behavior patterns in real systems.