

Can the Regenerative Method be Applied to Discrete-Event Simulations?

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The regenerative method enjoys asymptotic properties that make it a highly desirable approach for steady-state simulation output analysis. It has been shown that virtually all discrete-event simulations are regenerative. However, the method is not in widespread use, perhaps primarily because of a difficulty in identifying regeneration times.

Our goal in this paper is to highlight the essence of the difficulty in identifying regeneration times in discrete-event simulations. We focus on a very simple example of a discrete-event simulation, and explore its regenerative properties.

We show that for our example, it is possible to explicitly determine regeneration times. The ideas that are used to establish this fact might prove useful in identifying regeneration times in more general discrete-event system simulations.