

Locally most powerful sequential tests for discrete-time Markov processes

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Abstract

We consider a problem of testing $H_0:\theta = \theta_0$ against $H_1:\theta > \theta_0$, where θ is a parameter of a discrete-time Markov process. We construct a locally most powerful sequential test, which maximizes the derivative of the power function at $\theta = \theta_0$ in the class of level α sequential tests with the average sample size not greater than N . We construct a locally most powerful sequential test for an AR(1) autoregressive process with an unknown location parameter as an example. © 2011 Society for Industrial and Applied Mathematics.

<http://dx.doi.org/10.1137/S0040585X9798484X>

Keywords

Autoregressive process, Dependent observations, Discrete-time stochastic process, Locally most powerful test, Markov process, Optimal sequential test, Sequential analysis, Sequential hypothesis testing