A nonparametric predictive method for queues

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Abstract

This paper presents a novel statistical approach to queues. Instead of studying characteristics of an assumed parametric stochastic model, the method uses information in the form of observed service times per queue and, while adding a minimum of additional assumptions, develops predictive probability results for the waiting time for customers in a queue. We show how these results can be used in a multi-queue problem to assign arriving customers to queues, aiming at minimisation of waiting times.

Keywords: methodology; nonparametric predictive inference; queueing.