

Comments on “Jobshop-Like Queueing Systems”

The Background

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My interest in jobshop manufacturing led me to the basic subject matter of this paper. It was the second of two closely related papers; the first was “Networks of Queues,” (*Operations Research* 1957 5(4)). Both papers stemmed from my work with the Management Science Research Project at UCLA (then the Naval Logistics Research Project), where I was involved with the varied jobshops in and around the aircraft industry. The *Operations Research* paper was the almost serendipitous result of trying out what I thought was an incorrect solution, but one whose failings might give me ideas as to how interacting systems of queues actually do behave. It turned out that what I “tried out” was the actual solution. Of course it took a lot of fooling around with to show that it worked in general rather than in a few test cases.

After the initial paper got some notice, I realized that its possible realm of utility went well beyond the range of jobshops per se and that the original theorem

could be significantly generalized. The resulting paper, which is the subject of this note, also corrects weak points in the mathematical proof given by its predecessor.

It was satisfying in later years to see that several authors had further generalized my theorem, using more sophisticated mathematics than my beginner’s knowledge of stochastic systems provided. A few years later, I was especially pleased to serve on many doctoral committees headed by Professor Leonard Kleinrock, whose students reached further conclusions that formed valuable bases for his early work toward what developed into today’s Internet. It pleased me no end that Kleinrock, widely recognized as an important pioneer of the Internet, once referred to me as the “the father of the Internet.” I of course accept no such honor; if anything, I would say Kleinrock himself is the “father”; I am at most one among the many stepfathers.

Key words: queue; network; steady state