Review of: "Counting Processes with Multiple Randomness: Examples in Queuing Theory"

Pavel Loskot[1]

1 Zhejiang University

Potential competing interests: No potential competing interests to declare.

The author considers generalizing counting random processes, such that inter-arrival distribution follows one from a finite set of possible distributions. These processes are then assumed to analyze selected service queues. In my opinion, the paper has potential, but the presentation strategy needs to be reconsidered, particularly that the author is making a very strong claims about flaws in previous theorems and misinterpretation of simulation results. When making such strong statements, they immediately becomes the central focus of the paper. It means that this should be reflected in the paper title and abstract. Perhaps the paper is not so much about generalizing counting processes as it is about showing limitations of (validity of) Burke's and Reich's theorems.

Other suggestions:

- the introduction and definitions of generalized counting processes may be too mathematical; I believe the definition can be simplified without lost of rigorousness, e.g. by just using simpler mathematical notations
- instead of talking about m-fold randomness, could it be better to use standard terminology for random processes and use e.g. mixture processes, non-stationary processes etc.
- in abstract, it is unclear what is meant by ‘proper subset of sample space’ and why the process is not eligible to have marginal distribution
- it is unclear if the distributions of inter-arrival times are selected uniformly at random, or following some other rule
- it is unclear if the sample space consists of whole sequences or just individual events
- it is unclear why the subsections are titled ‘Departure from …’, there could be more appropriate wording
- instead of section titles ‘Flaws in …’ , it is better to use less controversial ‘Limitations of …’