An Alternative Transient Analysis for Semi-Markov Queuing Systems

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In the paper, using purely probabilistic argumentation, the theorems are proved, which, on one hand simplifies $M/G/1$ queuing systems analysis using supplementary variables method. On the other hand, it allows not using partial differential equations infinite system at all in nonclassical boundary value problem of mathematical physics, and directly yields the systems solution in terms of operational calculus.