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ERRATUM

Corrigendum: "Extended generator and associated martingales for M/G/1 retrial queue with classical retrial policy and general retrial times"

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In this Corrigendum, we correct an error in Theorem 3 and its proof of [Meziani, S. & Kernane, T. (2023). Extended generator and associated martingales for M/G/1 retrial queue with classical retrial policy and general retrial times. *Probability in the Engineering and Informational Sciences* 37(1):206–213.].

We have confused the expectation of the residual service time $E[Y(t)]$ with the expectation of the total service time. Let S a generic random variable representing the duration of the service time of a customer in the system considered. The residual service time $Y(t)$ at time t is given by:

$$Y(t) = S - t \mid S > t.$$

Hence, from Guess et al. [2]

$$\begin{aligned} \mu_Y(t) &= E[Y(t)] \\ &= \frac{1}{(1 - F(t))} \int_t^{\infty} (1 - F(u))du, \end{aligned}$$

where F is the distribution function of the service time.

Replace the statement of Theorem 3 with the following:

Theorem 0.1. *The conditional expectation of the number of blocked customers N(t) given $N(0) = n_0$ and $Y(0) = y_0$ (when $Y(t) \in \mathbb{E}_1 \cup \partial^* \mathbb{E}_1$) is given by:*

$$E[N(t)|N(0) = n_0] = \begin{cases} n_0 + \lambda t & \textit{for } \ t \in [0, \tau_0]; \\ n_0 + \lambda t + \dfrac{1}{\mu_1}(y_0 - t - \mu_Y(t)) & \textit{for } \ t \in [0, \tau_1], \end{cases}$$

where $\mu_1 = \int\limits_0^{\infty} ydF(y)$ and $\mu_Y(t)$ is the mean residual service time at time t.

Proof. The equation (5.1) in the proof is replaced by:

$$E[N(t) \mid N(0) = n_0] = n_0 + \lambda t - \frac{1}{\mu_1} E[Y(t)]. \tag{5.1}$$

Replace the mean residual service time in the proof by the following:

$$E[Y(t)] = \begin{cases} 0, & \text{for } t \in [0, \tau_0]; \\ \mu_Y(t), & \text{for } t \in [0, \tau_1]. \end{cases}$$

□

Remark: Integrability conditions (4.7) and (4.8) in the paper can be stated without taking the expectation as in Dassios and Zhao [1], p. 817, with any consequence on the results of the paper.

References

[1] Dassios, A. & Zhao, H. (2011). A dynamic contagion process. *Advances in Applied Probability* 43(3): 814–846.
[2] Guess, F. & Proschan, F. (1988). 12 mean residual life: theory and applications. *Handbook of statistics* 7 215–224.

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