

The third line of the display in the proof of Lemma 3 contains an error, pointed out to the authors by Jim Fill. The equation

$$\frac{1}{t} \sum_{s=1}^t q_s(\pi_j(t-s)) = \pi_j - \frac{\pi_j}{t} \sum_{s=1}^t s q_s$$

relies on $\sum_s q_s = 1$ but, in fact, $\sum_s q_s = P_i(T_j \leq t) < 1$.

Instead, we should first have summed to infinity (adding negative terms), and then distributed the summation over the two terms, as follows:

$$\begin{aligned} \Pr(v^Z = j) &= \frac{1}{t} \mathbb{E}_i Y_j^t = \frac{1}{t} \sum_{s=1}^t q_s (1 + \mathbb{E}_j Y_j^{t-s}) \\ &\geq \frac{1}{t} \sum_{s=1}^t q_s (\pi_j(t-s)) \\ &\geq \frac{1}{t} \sum_{s=1}^{\infty} q_s (\pi_j(t-s)) \\ &= \pi_j - \frac{\pi_j}{t} h \end{aligned}$$

giving the same result.