Two Queues with Weighted One-Way Overflow

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Published online: 28 February 2008
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Erratum to: Methodol Comput Appl Probab
DOI: 10.1007/s11009-007-9062-2

In equation (13), (14), (38), (39), (53), (56), (61) and (67) the terms $(i+1) \wedge n_1$ and $(j+1) \wedge n_2$ should have been replaced with $((i+1) \wedge n_1)$ and $((j+1) \wedge n_2)$, respectively. They appear correctly below. This was a typographical error.

$$\begin{aligned}
 & (\lambda_1(1 - \delta_{ik_1})(1 - \chi_{i-n_1}(1 - \chi_{j-n_2})) + p\lambda_1\chi_{i-n_1}(1 - \chi_{j-n_2})) \\
 & + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2 p_{i,j} \\
 & = (1 - \chi_{i-n_1-1}\chi_{n_2-j-1})(\lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1}) \\
 & + (1 - \delta_{j0})(p\lambda_1\delta_{in_1}\chi_{n_2-j} + \lambda_2(1 - \chi_{i-n_1-1}\chi_{n_2-j}))p_{i,j-1} \\
 & + (1 - \delta_{ik_1})((1 - \chi_{i-n_1}\chi_{n_2-1-j})((i+1) \wedge n_1)\mu_1 + n_2\mu_2\delta_{jn_2}\chi_{i-n_1})p_{i+1,j} \quad (13)
 \end{aligned}$$

$$\begin{aligned}
 & (\lambda_1 + \lambda_2(1 - \delta_{jk_2}) + i\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
 & = \lambda_1(1 - \delta_{i0})p_{i-1,j} + (i+1)\mu_1 p_{i+1,j} + (1 - \delta_{j0})\lambda_2 p_{i,j-1} \\
 & + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1}. \quad (14)
 \end{aligned}$$

The online version of the original article can be found at
<http://dx.doi.org/10.1007/s11009-007-9062-2>

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$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1}\chi_{j-n_2})(1 - \chi_{i-n_1}(1 - \chi_{j-n_2})) + p\lambda_1\chi_{i-n_1}(1 - \chi_{j-n_2})) \\
& + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = (1 - \chi_{i-n_1-1}\chi_{n_2-j-1})(\lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{ik_1})((i+1) \wedge n_1)\mu_1 p_{i+1,j} \\
& + (1 - \delta_{j0})(p\lambda_1\chi_{i-n_1}\chi_{n_2-j} + \lambda_2)p_{i,j-1} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1} \quad (38)
\end{aligned}$$

$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1})(1 - \chi_{i-n_1}(1 - \chi_{j-n_2})) + p\lambda_1\chi_{i-n_1}(1 - \chi_{j-n_2})) \\
& + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = (1 - \chi_{i-n_1-1}(1 - \delta_{jk_2}))(\lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1}) \\
& + (1 - \delta_{j0})(p\lambda_1\delta_{in_1}\chi_{n_2-j} + \lambda_1\delta_{in_1}(1 - \chi_{n_2-j}) + \lambda_2(1 - \chi_{i-n_1-1}))p_{i,j-1} \\
& + (1 - \delta_{ik_1})((1 - \chi_{i-n_1}(1 - \delta_{jk_2}))((i+1) \wedge n_1)\mu_1 + n_2\mu_2\delta_{jn_2}\chi_{i-n_1})p_{i+1,j} \quad (39)
\end{aligned}$$

$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1}\delta_{jk_2}) + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = (1 - \delta_{i0})(1 - \chi_{i-n_1-1}\delta_{jk_2})\lambda_1 p_{i-1,j} + (1 - \delta_{ik_1})((i+1) \wedge n_1)\mu_1 p_{i+1,j} \\
& + (1 - \delta_{j0})(\lambda_1\chi_{i-n_1} + \lambda_2)p_{i,j-1} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1} \quad (53)
\end{aligned}$$

$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1})(1 - \chi_{i-n_1}(1 - \delta_{jk_2})) + p\lambda_1\chi_{i-n_1}(1 - \delta_{jk_2})) \\
& + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = (1 - \chi_{i-n_1-1}(1 - \delta_{jk_2}))(\lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1}) \\
& + (1 - \delta_{j0})(p\lambda_1\delta_{in_1} + \lambda_2(1 - \chi_{i-n_1-1}))p_{i,j-1} \\
& + (1 - \delta_{ik_1})((1 - \chi_{i-n_1}(1 - \delta_{jk_2}))((i+1) \wedge n_1)\mu_1 + n_2\mu_2\delta_{jk_2}\chi_{i-n_1})p_{i+1,j} \quad (56)
\end{aligned}$$

$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1})(1 - \delta_{ik_1}(1 - \chi_{j-n_2})) + p\lambda_1\delta_{ik_1}(1 - \chi_{j-n_2}) + \lambda_2(1 - \delta_{jk_2})) \\
& + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = \lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{ik_1})((i+1) \wedge n_1)\mu_1 p_{i+1,j} \\
& + (1 - \delta_{j0})(p\lambda_1\delta_{ik_1}\chi_{n_2-j} + \lambda_2)p_{i,j-1} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1} \quad (61)
\end{aligned}$$

$$\begin{aligned}
& (\lambda_1(1 - \delta_{ik_1}) + p\lambda_1\delta_{ik_1}(1 - \delta_{jk_2}) + \lambda_2(1 - \delta_{jk_2}) + (i \wedge n_1)\mu_1 + (j \wedge n_2)\mu_2)p_{i,j} \\
& = \lambda_1(1 - \delta_{i0})p_{i-1,j} + (1 - \delta_{ik_1})((i+1) \wedge n_1)\mu_1 p_{i+1,j} \\
& + (1 - \delta_{j0})(p\lambda_1\delta_{ik_1} + \lambda_2)p_{i,j-1} + (1 - \delta_{jk_2})((j+1) \wedge n_2)\mu_2 p_{i,j+1} \quad (67)
\end{aligned}$$