

$$\begin{bmatrix}
-P(N_k^a|L_k^c) & 0 & 0 & 0 & 0 & \dots & 0 & 0 & 0 & 0 \\
L_{k+1}) & 1 & 0 & -P(N_{k+1}^a|L_{k+1}) & 0 & \dots & 0 & 0 & 0 & 0 \\
L_{k+1}^c) & 0 & 1 & -P(N_{k+1}^a|L_{k+1}^c) & 0 & \dots & 0 & 0 & 0 & 0 \\
0 & -P(N_{k+2}^d|L_{k+2}) & 1 & 0 & -P(N_{k+2}^a|L_{k+2}) & \dots & 0 & 0 & 0 & 0 \\
0 & -P(N_{k+2}^d|L_{k+2}^c) & 0 & 1 & -P(N_{k+2}^a|L_{k+2}^c) & \dots & 0 & 0 & 0 & 0 \\
\vdots & \vdots & \vdots & \vdots & \vdots & \ddots & \vdots & \vdots & \vdots & \vdots \\
0 & 0 & 0 & 0 & 0 & \dots & -P(N_{c-1}^d|L_{c-1}) & 1 & 0 & -P(N_{c-1}^a|L_{c-1}) \\
0 & 0 & 0 & 0 & 0 & \dots & -P(N_{c-1}^d|L_{c-1}^c) & 0 & 1 & -P(N_{c-1}^a|L_{c-1}^c) \\
0 & 0 & 0 & 0 & 0 & \dots & 0 & 0 & -P(N_c^d|L_c) & 1
\end{bmatrix} \cdot \begin{bmatrix}
E(\tilde{A}_{kk}^{cn}|L_k^c) \\
E(\tilde{A}_{kk+1}^{cn}|L_{k+1}) \\
E(\tilde{A}_{kk+1}^{cn}|L_{k+1}^c) \\
E(\tilde{A}_{kk+2}^{cn}|L_{k+2}) \\
E(\tilde{A}_{kk+2}^{cn}|L_{k+2}^c) \\
\vdots \\
E(\tilde{A}_{kc-1}^{cn}|L_{c-1}) \\
E(\tilde{A}_{kc-1}^{cn}|L_{c-1}^c) \\
E(\tilde{A}_{kc}^{cn}|L_c)
\end{bmatrix}.$$

$$\begin{bmatrix}
P(N_k^s|L_k^c) + P(N_k^s|L_k^c)E\left(\tilde{B}_{kk}^{c+n}|L_k^c\right) \\
P(N_{k+1}^s|L_{k+1}) + P(N_{k+1}^s|L_{k+1})E\left(\tilde{B}_{kk+1}^{c+n}|L_{k+1}^c\right) \\
P(N_{k+1}^s|L_{k+1}^c) + P(N_{k+1}^s|L_{k+1}^c)E\left(\tilde{B}_{kk+1}^{c+n}|L_{k+1}^c\right) \\
P(N_{k+2}^s|L_{k+2}) + P(N_{k+2}^s|L_{k+2})E\left(\tilde{B}_{kk+2}^{c+n}|L_{k+2}^c\right) \\
P(N_{k+2}^s|L_{k+2}^c) + P(N_{k+2}^s|L_{k+2}^c)E\left(\tilde{B}_{kk+2}^{c+n}|L_{k+2}^c\right) \\
\vdots \\
P(N_{c-1}^s|L_{c-1}) + P(N_{c-1}^s|L_{c-1})E\left(\tilde{B}_{kc-1}^{c+n}|L_{c-1}^c\right) \\
P(N_{c-1}^s|L_{c-1}^c) + P(N_{c-1}^s|L_{c-1}^c)E\left(\tilde{B}_{kc-1}^{c+n}|L_{c-1}^c\right) \\
E(\tilde{A}_{kc}^{cn}|L_c)
\end{bmatrix}$$