

$$\begin{aligned}
& a[1, ij] \rightarrow a[1, ij] + a[1 - e^{-t b_j}, ik] + a\left[\frac{(-1+e^{-t b_j}) b_i}{b_j}, jk\right] + \\
& \gamma\left[\frac{1-e^{-t b_j}}{b_j}, ijk\right] + \gamma a\left[\frac{-1+e^{-t b_j}+t b_j}{b_j^2}, ijjk\right] + \gamma a\left[\frac{-1+e^{-t b_j}+t b_j}{b_j^2}, ikjk\right] + \\
& \gamma a\left[\frac{b_i(1-e^{-2t b_j}-2e^{-t b_j} t b_j)}{b_j^3}, jkjk\right] + \gamma a\left[\frac{e^{-2t b_j}(1+e^{t b_j}(-1+t b_j))}{b_j^2}, jkik\right]
\end{aligned}$$

$$\begin{aligned}
& a[1, ik] \rightarrow a[e^{-t b_j}, ik] + a\left[\frac{(1-e^{-t b_j}) b_i}{b_j}, jk\right] + \\
& \gamma a\left[\frac{e^{-2t b_j} b_i(1-e^{2t b_j}+2e^{t b_j} t b_j)}{b_j^3}, jkjk\right] + \\
& \gamma a\left[\frac{e^{-2t b_j}(-1+e^{t b_j}(1-t b_j))}{b_j^2}, jkik\right]
\end{aligned}$$

$$a[1, j1] \rightarrow a[1, j1] + \gamma[t, jkl] + \gamma a\left[\frac{1-e^{-t b_j}-t b_j}{b_j^2}, jkjl\right]$$

$$\begin{aligned}
& a[1, kl] \rightarrow a[e^{t b_j}, kl] + a\left[\frac{(1-e^{t b_j}) b_k}{b_j}, jl\right] + \\
& \gamma\left[\frac{t b_j b_k+(1-e^{t b_j})(b_j+b_k)}{b_j^2}, jkl\right] + \gamma a\left[\frac{1+e^{t b_j}(-1+t b_j)}{b_j^2}, jkk1\right] + \\
& \gamma a\left[\frac{-2 b_j+e^{-t b_j} b_j-2 b_k-t b_j b_k+e^{t b_j}(b_j+2 b_k-t b_j b_k)}{b_j^3}, jkjl\right]
\end{aligned}$$

$$\begin{aligned}
& \beta[f[b_j, b_k]] \rightarrow \\
& \gamma\left[\frac{(-1+e^{-t b_j})(f^{(0,1)}[b_j, b_k]-f^{(1,0)}[b_j, b_k])}{b_j}, jk\right] + \beta[f[b_j, b_k]]
\end{aligned}$$

$$\gamma[1, ij] \rightarrow \gamma[1, ij] + \gamma[1 - e^{-t b_j}, ik]$$

$$\gamma[1, ik] \rightarrow \gamma[e^{-t b_j}, ik]$$

$$\gamma[1, jk] \rightarrow \gamma[e^{-t b_j}, jk]$$

$$\gamma[1, kl] \rightarrow \gamma[e^{t b_j}, kl] + \gamma\left[\frac{(1-e^{t b_j}) b_k}{b_j}, jl\right]$$

$$\gamma[1, ijk] \rightarrow \gamma[e^{-t b_j}, ijk] + \gamma a\left[\frac{1-e^{-t b_j}}{b_j}, ijjk\right] + \gamma a\left[\frac{1-e^{-t b_j}}{b_j}, ikjk\right]$$

$$\gamma[1, ij1] \rightarrow \gamma[1, ij1] + \gamma[1 - e^{-t b_j}, ik1] + \gamma a\left[\frac{1-e^{-t b_j}}{b_j}, iljk\right]$$

$$\gamma[1, ik1] \rightarrow \gamma[e^{-t b_j}, ik1] + \gamma a\left[\frac{-1+e^{-t b_j}}{b_j}, iljk\right]$$

$$\gamma[1, jk1] \rightarrow \gamma[1, jk1] + \gamma a\left[\frac{-1+e^{-t b_j}}{b_j}, jkjl\right]$$

$$\gamma[1, klm] \rightarrow \gamma[e^{t b_j}, klm] + \gamma\left[\frac{(1-e^{t b_j}) b_k}{b_j}, jlm\right]$$

$$\gamma a[1, jkjl] \rightarrow \gamma a[e^{-t b_j}, jkjl]$$