

Print[# -> Ad[a[t, j, k]] [#]] & /@ tests;

$$\beta[f[b_j, b_k]] \rightarrow \beta[f[b_j, b_k]] + \gamma\left[\frac{(-1+e^{-tb_j})(f^{(0,1)}[b_j, b_k]-f^{(1,0)}[b_j, b_k])}{b_j}, j, k\right]$$

$$\gamma[1, i, j] \rightarrow \gamma[1, i, j] + \gamma[1 - e^{-tb_j}, i, k]$$

$$\gamma[1, i, k] \rightarrow \gamma[e^{-tb_j}, i, k]$$

$$\gamma[1, i, l] \rightarrow \gamma[1, i, l]$$

$$\gamma[1, j, k] \rightarrow \gamma[e^{-tb_j}, j, k]$$

$$\gamma[1, j, l] \rightarrow \gamma[1, j, l]$$

$$\gamma[1, k, l] \rightarrow \gamma[e^{tb_j}, k, l] + \gamma\left[\frac{(1-e^{-tb_j})b_k}{b_j}, j, l\right]$$

$$\gamma[1, j, l, m] \rightarrow \gamma[1, j, l, m]$$

$$\gamma[1, i, j, l] \rightarrow \gamma[1, i, j, l] + \gamma[1 - e^{-tb_j}, i, k, l] + \gamma a\left[\frac{1-e^{-tb_j}}{b_j}, i, l, j, k\right]$$

$$\gamma[1, i, k, l] \rightarrow \gamma[e^{-tb_j}, i, k, l] + \gamma a\left[\frac{-1+e^{-tb_j}}{b_j}, i, l, j, k\right]$$

$$\gamma[1, k, l, m] \rightarrow \gamma[e^{tb_j}, k, l, m] + \gamma\left[\frac{(1-e^{-tb_j})b_k}{b_j}, j, l, m\right]$$

$$\gamma[1, j, k, l] \rightarrow \gamma[1, j, k, l] + \gamma a\left[\frac{-1+e^{-tb_j}}{b_j}, j, k, j, l\right]$$

$$\gamma[1, i, j, k] \rightarrow \gamma[e^{-tb_j}, i, j, k] + \gamma a\left[\frac{1-e^{-tb_j}}{b_j}, i, j, j, k\right] + \gamma a\left[\frac{1-e^{-tb_j}}{b_j}, i, k, j, k\right]$$

$$a[1, j, k] \rightarrow a[1, j, k]$$

$$a[1, j, l] \rightarrow a[1, j, l] + \gamma[t, j, k, l] + \gamma a\left[\frac{1-e^{-tb_j}-tb_j}{b_j^2}, j, k, j, l\right]$$

$$a[1, i, k] \rightarrow a[e^{-tb_j}, i, k] + a\left[\frac{(1-e^{-tb_j})b_i}{b_j}, j, k\right] + \gamma a\left[\frac{e^{-2tb_j}b_i(1-e^{-2tb_j}+2e^{-tb_j}tb_j)}{b_j^3}, j, k, j, k\right] + \gamma a\left[\frac{e^{-2tb_j}(-1+e^{-tb_j}(1-tb_j))}{b_j^2}, j, k, i, k\right]$$

$$a[1, i, j] \rightarrow a[1, i, j] + a[1 - e^{-tb_j}, i, k] + a\left[\frac{(1-e^{-tb_j})b_i}{b_j}, j, k\right] +$$

$$\gamma\left[\frac{1-e^{-tb_j}}{b_j}, i, j, k\right] + \gamma a\left[\frac{-1+e^{-tb_j}+tb_j}{b_j^2}, i, j, j, k\right] + \gamma a\left[\frac{-1+e^{-tb_j}+tb_j}{b_j^2}, i, k, j, k\right] +$$

$$\gamma a\left[\frac{b_i(1-e^{-2tb_j}-2e^{-tb_j}tb_j)}{b_j^3}, j, k, j, k\right] + \gamma a\left[\frac{e^{-2tb_j}(1+e^{-tb_j}(-1+tb_j))}{b_j^2}, j, k, i, k\right]$$

$$a[1, k, l] \rightarrow a[e^{tb_j}, k, l] + a\left[\frac{(1-e^{-tb_j})b_k}{b_j}, j, l\right] + \gamma\left[\frac{tb_j b_k + (1-e^{-tb_j})(b_j+b_k)}{b_j^2}, j, k, l\right] +$$

$$\gamma a\left[\frac{1+e^{-tb_j}(-1+tb_j)}{b_j^2}, j, k, k, l\right] + \gamma a\left[\frac{-2b_j+e^{-tb_j}b_j-2b_k-tb_j b_k+e^{-tb_j}(b_j+2b_k-tb_j b_k)}{b_j^3}, j, k, j, l\right]$$

$$a[1, l, m] \rightarrow a[1, l, m]$$

$$\gamma a[1, j, k, j, l] \rightarrow \gamma a[e^{-tb_j}, j, k, j, l]$$