

AutoAd[bb[j, k], UU@a[1, j, k]][UU@a[1, 0, k]]

$$\begin{aligned} & UU \left[a \left[e^{-b_j}, 0, k \right] + a \left[\frac{(1-e^{-b_j}) b_0}{b_j}, j, k \right] + \right. \\ & \delta a \left[\frac{e^{-2 b_j} b_0 (-1-e^{b_j} (-1+b_j))}{b_j^2}, j, k \right] + \\ & \delta a \left[\frac{e^{-2 b_j} (1+e^{b_j} (-1+b_j))}{b_j}, 0, k \right] + \\ & \delta a a \left[\frac{e^{-2 b_j} (-1-e^{b_j} (-1+b_j))}{b_j^2}, 0, k, j, k \right] + \\ & \delta a a \left[\frac{2 e^{-b_j} b_0 (\sinh[b_j]-b_j)}{b_j^2}, \zeta, k, j, k \right] + \\ & \delta a a \left[\frac{e^{-2 b_j} (1+e^{b_j} (-1+b_j))}{b_j}, \zeta, k, 0, k \right] + \\ & \left. \delta a a \left[\frac{2 e^{-b_j} b_0 (-\sinh[b_j]+b_j)}{b_j^3}, j, k, j, k \right] \right] \end{aligned}$$