

$$\phi_{k_}[\mathbf{x}_] := \mathbf{x}^{-k} (\mathbf{e}^{\mathbf{x}} - \text{Sum}[\mathbf{x}^\alpha / \alpha!, \{\alpha, 0, k-1\}]);$$

$$\text{Ea}[t_ , j_ , k_] := \text{TSD} \left[\left\{ \begin{array}{l} j \rightarrow \text{UU}[\mathbf{a}[1, j, \text{hoo}] + \delta \mathbf{a} \mathbf{a}[t, \zeta, \text{hoo}, j, k] + \\ \delta \mathbf{a} \mathbf{a}[-t \phi_1[-t \mathbf{b}_j], \zeta, k, j, \text{hoo}] + \\ \delta \mathbf{a} \mathbf{a}[-t^2 \phi_2[-t \mathbf{b}_j], j, k, j, \text{hoo}]], \\ k \rightarrow \text{UU}[\mathbf{a}[1, k, \text{hoo}] + \text{hb}[-t \phi_1[t \mathbf{b}_j], j, k, \text{hoo}] + \\ \delta \text{hb}[t^2 \mathbf{b}_k \mathbf{e}^{t \mathbf{b}_j} \phi_2[-t \mathbf{b}_j], \zeta, j, \text{hoo}] + \\ \delta \mathbf{a} \mathbf{a}[-t^2 \mathbf{b}_j \mathbf{e}^{t \mathbf{b}_j} \phi_2[-t \mathbf{b}_j], \zeta, k, k, \text{hoo}] + \\ \delta \mathbf{a} \mathbf{a}[t^2 \mathbf{e}^{t \mathbf{b}_j} \phi_2[-t \mathbf{b}_j], j, k, k, \text{hoo}] + \\ \delta \mathbf{a} \mathbf{a}[-t \phi_1[t \mathbf{b}_j] - t^2 \mathbf{b}_k \phi_2[t \mathbf{b}_j], \zeta, \text{hoo}, j, k] + \\ \delta \mathbf{a} \mathbf{a}[t \phi_1[-t \mathbf{b}_j] + t^2 \mathbf{b}_k \mathbf{e}^{t \mathbf{b}_j} \phi_2[-t \mathbf{b}_j], \zeta, k, j, \text{hoo}] + \\ \delta \mathbf{a} \mathbf{a} \left[\frac{t (\phi_1[t \mathbf{b}_j] - \phi_1[-t \mathbf{b}_j])}{\mathbf{b}_j} - \right. \\ \left. \frac{(2 - 2 \mathbf{e}^{t \mathbf{b}_j} + (1 + \mathbf{e}^{t \mathbf{b}_j}) t \mathbf{b}_j) \mathbf{b}_k}{\mathbf{b}_j^3}, j, k, j, \text{hoo} \right] \end{array} \right\} \right];$$

$$\text{Ea}[j_ , k_] := \text{Ea}[1, j, k];$$