

$\Delta[U_, kk_] := \Delta[U, kk] = \text{Module}[\{\text{OE}\},$

$\text{OE} = \text{Block}[\{\$k = kk, \$p = kk + 1\},$

$m_{1,3,5 \rightarrow 1} @$

$m_{2,4,6 \rightarrow 2} @ \text{Times} [(* \text{Warning:}$
 $\text{wrong unless } \$p \geq \$k + 1! *)$

$\text{ReplacePart}[1 \rightarrow \emptyset] @$

$\text{Exp}_{\text{QU}_1, \$k} [\eta, \Delta_{1 \rightarrow 1, 2} [\text{QU}[y_1]] /. \text{QU} \rightarrow \text{Times}],$

$\text{ReplacePart}[2 \rightarrow \emptyset] @$

$\text{Exp}_{\text{QU}_3, \$k} [\alpha, \Delta_{3 \rightarrow 3, 4} [\text{QU}[a_3]] /. \text{QU} \rightarrow \text{Times}],$

$\text{ReplacePart}[1 \rightarrow \emptyset] @$

$\text{Exp}_{\text{QU}_5, \$k} [\xi, \Delta_{5 \rightarrow 5, 6} [\text{QU}[x_5]] /. \text{QU} \rightarrow \text{Times}]$

$] /. \{\eta \rightarrow \eta_1, \alpha \rightarrow \alpha_1, \xi \rightarrow \xi_1\};$

$\mathbb{E}[\tau_1 (\mathbf{t}_1 + \mathbf{t}_2) + \alpha_1 (\mathbf{a}_1 + \mathbf{a}_2), \text{OE}[[2]], \text{OE}[[3]]];$

$t\Delta_{i \rightarrow j, k} :=$

$\Delta[\$U, \$k] /. \{(\mathbf{v} : \tau | \eta | \alpha | \xi)_1 \rightarrow \mathbf{v}_i,$

$(\mathbf{v} : \mathbf{t} | \mathbf{T} | \mathbf{y} | \mathbf{a} | \mathbf{x})_1 \rightarrow \mathbf{v}_j, (\mathbf{v} : \mathbf{t} | \mathbf{T} | \mathbf{y} | \mathbf{a} | \mathbf{x})_2 \rightarrow \mathbf{v}_k\};$