

$SW_{xy}[U_, kk_] :=$

$Block[\{\$U = U, \$k = kk, \$p = kk\},$

$Module[\{G, F, fs, f, bs, e, b, es\},$

$G = Simp[Table[\xi^k/k!, \{k, 0, \$k + 1\}].$

$NestList[Simp[B[x_U, \#]] \&, y_U, \$k + 1];$

$fs = Flatten@Table[f_{1,i,j,k}[\eta], \{1, 0, \$k\}, \{i, 0, 1\},$   
 $\{j, 0, 1\}, \{k, 0, 1\}];$

$F = fs.(bs = fs /. f_{l_,i_,j_,k_}[\eta] \Rightarrow \epsilon^l U @ \{y^i, a^j, x^k\});$

$es = Flatten[Table[Coefficient[e, b] == 0,$   
 $\{e, \{F - 1_U /. \eta \rightarrow 0, F ** G - y_U ** F - \partial_\eta F\}\},$   
 $\{b, bs\}]]];$

$F = F /. DSolve[es, fs, \eta][[1]];$

$\mathbb{E}[0,$

$\xi x + \eta y + (U /. \{CU \rightarrow -t \eta \xi, QU \rightarrow \eta \xi (1 - T) / \hbar\}),$

$F + 0_{\$k} /. \{e^- \rightarrow 1, U \rightarrow Times\}$

$] /. (v : \eta | \xi | t | T | y | a | x) \rightarrow v_1$

$]]];$

$tSW_{xy,i_,j_ \rightarrow k_} :=$

$SW_{xy}[\$U, \$k] /. \{\xi_1 \rightarrow \xi_i, \eta_1 \rightarrow \eta_j, (v : t | T | y | a | x)_1 \rightarrow v_k\};$

$tSW_{xa,i_,j_ \rightarrow k_} := \mathbb{E}[\alpha_j a_k, e^{-\gamma \alpha_j} \xi_i x_k, 1];$

$tSW_{ay,i_,j_ \rightarrow k_} := \mathbb{E}[\alpha_i a_k, e^{-\gamma \alpha_i} \eta_j y_k, 1];$